BULLETIN OF THE HISTORY OF MEDICINE

ORGAN OF THE AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE
AND THE JOHNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

Editor—HENRY E. SIGERIST

VOLUME X NOVEMBER, 1941 NUMBER 4

KNOWLEDGE OF THE ANCIENTS REGARDING THE APE

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In a recently published work[1] Professor W. C. McDermott has brought together a considerable portion of the available data relating to the knowledge of the apes possessed by the peoples of antiquity, who lived, principally, around and about the Mediterranean basin. In addition the author treats of the ape in art, as a pet, as a source of humour, and as an evil beast. McDermott uses the term ape as a general name for all the non-human primates; from his text it is clear that the Lemuroidea are excluded from the groups of primates which the term ape is intended to embrace. For this practise there is considerable authority both in classical usage and in Renaissance systematics, although in the language of the learned the term ape (πίθηκος) has, ever since the days of Aristotle, been more or less generally used to refer to a primate lacking a tail, or to one possessing but a vestige of a tail, as distinguished from

[1] William Coffman McDermott, *The Ape in Antiquity*. The Johns Hopkins University Studies in Archaeology, No. 27, pp. xi + 338, Plates X. Baltimore: The Johns Hopkins Press, 1938, ($5.00).

primates characterized by an appreciable caudal appendage.[2] The terms originally used by Aristotle to distinguish the various groups of primates known to him were πίθηκος (ape), κυνοκέφαλος (baboon), and κῆβος (monkey), and among the learned these terms have persisted in customary usage with practically their original meanings to this day. But this is the usage of specialists who, until very recent times, when they wished to refer to the monkeys and apes in general used the common word ape.[3] This was the usage adopted and followed by the writers of the first modern comparative anatomy.[4] Since this work is none too well known I shall take the liberty of quoting the relevant passage here. It is the first paragraph of the chapter entitled "Description Anatomique de Plusieurs Singes de Différentes Espèces."

L'on reduit ordinairement les Singes sous deux genres, dont l'un est des Singes qui ont des queuës, & l'autre de ceux qui n'en ont point. Le Singe qui est sans queue est appellé simplement *Simia* par les Latins. Les Singes qui ont une queuë sont de deux especes. Les Latins ont emprunté des Grecs

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[2] Aristotle, *Historia Animalium.* Lib. 2, Cap. 8-9; Linnaeus, *Systema Naturae.* Holmiae, 1760, Lib. 6, p. 63, Editio 12, (the last edition to be issued during Linné's lifetime). A. A. H. Lichtenstein, *Commentatio philologica de simiarum quotquot veteribus innotuerunt formis earumque nominibus pro specimine methodi qua historia naturalis veterum ad systema naturae Linnaeanum exigenda atque adornanda,* Hamburg, 1791: See also R. M. Yerkes and A. W. Yerkes, *The Great Apes.* New Haven, 1929, pp. 36-37.

[3] It may be worth noting here that at the present there exists no word in the English language which may serve as a collective term for all the primates. It is unlikely that the classificatory term "primate" will ever come into common usage, in any case, the latter term is already reserved by the Church to describe the chief ecclesiastic, and we must be careful here, *acerrima proximorum odia!*

[4] *Mémoires Pour Servir à l'Histoire Naturelle des Animaux.* Paris, A L'Imprimerie Royale, 1671-76, 2 volumes folio. This truly magnificent work was at first issued anonymously and distributed as a royal gift by Louis XIV, and is extremely rare. It was reissued in 1676 in one volume bearing the name of Claude Perrault as editor. An English translation of the latter edition was made by Alexander Pitfeild, approved for printing by a Council of the Royal Society 17 November 1686, and published at London in 1688. For this edition the original beautiful plates were entirely redrawn by Richard Waller. The title of the English translation is—*Memoir's for a Natural History of Animals. Containing the Anatomical Descriptions of Several Creatures Dissected by the Royal Academy of Sciences at Paris.*—London, Printed by Joseph Streeter, 1688. 2nd Edition: Printed for John Clarke, London, 1701.

FIG. 1.

Detail of bowl from Curium, Cyprus. Diameter 21 cm. (New York, The Metropolitan Museum of Art. Cesnola Collection, Number 4556).

Courtesy of The Metropolitan Museum of Art, New York.

les noms qu'ils leur donnent; car les uns sont appelés *Cercopytheci*, du nom du genre, c'est-à-dire, Singes qui ont une queuë; les autres *Cynocephali*, c'est-à-dire, qui ont une tête de Chien, a cause de la longuer de leur museau.

In this passage the use of the term "Singe" represents the typical usage of the term "ape," a usage which is so well established as to render it the only possible term which McDermott could have adopted for the purpose he had in view. The common usage, by which any of the non-human primates—with the exception of the Lemurs—may be termed an ape, is the sense in which McDermott uses the term, and this is the sense in which we may justly understand it throughout his book.

In Part I the author deals with the various aspects of his subject in a clear and interesting manner, and in Part II he provides an annotated Catalogue, as well as an extensive Bibliography, relating to the materials discussed in the text. McDermott's monograph is the most exhaustive treatment of its subject which has thus far appeared, and replaces Lichtenstein's, and all previous works of a similar nature, as the authoritative treatise on the ape in Antiquity. In view of the fact that the author is a Latinist without any special knowledge of the primates he is to be heartily congratulated upon the careful manner in which he has treated the systematic side of his subject—a quicksand into which more than one careful investigator has fallen inextricably.[5] On several occasions, however, the author permits himself a daring inference from slender evidence, and the presentation of a conclusion which is at once unorthodox as well as challenging. It is principally with the material of these occasions that I propose to deal here.

Early in the work occurs the following paragraph:

During the period which followed the downfall of the Minoan-Mycenean civilization Cyprus played an important part in the transmission of the

[5] It may be remarked here that of all the fields of mammalian taxonomy that which relates to the primates still remains in the most primitive and confused condition. D. G. Elliot's monograph *A Review of the Primates*. 3 vols., New York, 1913, upon which McDermott relies as his authority, has done not a little to add to the general confusion. Here again, McDermott had no other choice than to resort to the best systematic work on the primates available, and for all its faults that is what Elliot's monograph still remains.

Oriental influence which played so large a part in the rise of Greek civilization. As might be expected, the proximity of Phoenician traders resulted in the importation into Cyprus of various objects which show Egyptian and Assyrian influence. Most striking of the finds which concern the subject at hand are two gilded silver bowls which in their relief decoration combine Egyptian and Assyrian motives. One was found at Praeneste and the other at Curium on Cyprus, but both seem to be from the same workshop, and are of Phoenician-Cypriote workmanship. Since in the main scene they may portray Cinyras, who was the legendary founder of Amathus, Curium and other cities of Cyprus, they may have been made on the island of Cyprus, or at least with Cyprus in mind as a market. This main scene shows the hunting of deer and of a gorilla. These bowls date about 700 B. C. (p. 24).

Now, what is so startling about this paragraph is that in it a figure on a bowl dating from the eighth century before our era is called a "gorilla." Startling, because knowledge of the gorilla was not established until the year 1847, when Savage and Wyman published the first account of that anthropoid.[6] There can be no question that the gorilla had been beheld by human eyes long before the establishment of its existence in 1847 by Savage and Wyman, but it is extremely unlikely that those eyes ever belonged to a person other than a native living in close proximity to the native habitat of this animal. It is even possible that juvenile specimens of gorilla had been seen by early occidental travellers, but it is highly improbable that such persons ever beheld an adult specimen, for it is quite impossible, under ordinary conditions, to take an adult gorilla alive, and in its native habitat it can be seen only with the greatest difficulty.[7] If such juvenile gorillas were ever observed, then their beholders left no account of them sufficiently precise to enable anyone to recognize the gorilla. There is, to be sure, Hanno's oft-quoted account, dating from the fifth century B. C., of his adventure with animals resembling anthropoids which have sometimes been identi-

[6] T. S. Savage and J. Wyman, "Notice of the external characters and habits of *Troglodytes gorilla*, a new species of orang from the Gaboon River . . . Osteology of the same." *Boston Journal of Natural History*, vol. 5, 1847, pp. 417-443. "Orang," of course, was the general name for a man-like ape, and not the name of the animal generically thus known.

[7] H. C. Bingham, *Gorillas in a Native Habitat*. Carnegie Institution of Washington Publication No. 426, August 1932; W. K. Gregory and H. C. Raven, *In Quest of Gorillas*. New Bedford, Conn., 1937.

fied with gorillas. These animals may quite well have been gorillas, and they may equally well have been chimpanzees, or any one of a number of other primates which are known from the parts of the coast of West Africa visited by Hanno. McDermott thinks it likely that these animals were gorillas. Here is the passage from Hanno:

> Following the rivers of fire for three further days, we reached a gulf named Southern Horn. In the gulf lay an island like the previous one, with a lake, and in it another island. The second island was full of wild people. By far the greater number were women with hairy bodies. Our interpreters called them Gorillas (Γορίλλας). We gave chase to the men, but could not catch any, for they all scampered up steep rocks and pelted us with stones. We secured three women, who bit and scratched and resisted their captors. But we killed and flayed them, and brought the hides to Carthage.[8]

The "Southern Horn" of Hanno's "Periplus" has been identified as Sherbro Sound, and the island in which lay another island as Macauley Island, which enfolds a smaller island in a tongue of sea, as at Orang,[9] off the coast of West Africa.

The fact that Hanno's men encountered these animals as far west as Sierra Leone, a territory in which gorillas are not known to occur to-day, does not constitute a real objection to the suggestion that the animals may have been gorillas, since their range in former times may very well have been, and probably was, greater than it is to-day. That they were called "gorillas" by the interpreters may mean no more than that Hanno or his companion misheard or garbled a native term, for the word "gorilla" is not one which occurs in any known African language. A common native name for the gorilla is *engena,* and for the chimpanzee, *engeco.* It is not difficult to understand how the term "gorilla" might have been derived from such a word as "engena," especially when the latter word is nasalized and glottalized, or in short, slurred. Pronounced in this way the latter sounds something like 'n'g'lla, from which "gorilla" would not be a difficult step. Du Chaillu, the first white

[8] Translation from M. Cary and E. H. Warmington, *The Ancient Explorers.* London, 1929, p. 51. The Greek text and Latin translation will be found in Carolus Mullerus, *Geographi Graeci Minores.* Parisiis, 1882, under "Periplus," pp. 13-14.

[9] See Mueller, *op. cit.* and Cary and Warmington, *op. cit.*

man to see the gorilla in its native habitat, states that the Mbondemo tribe called the gorilla "Nguyla," while the Mpongwe called it "Ngina." There probably exist many other variant forms of the native name for gorilla.[10] Speculation, however, on the origin of the name gorilla will not greatly assist us in determining what anthropoid, if any, Hanno's men actually saw.[11] The fact is that there exist a number of good reasons why Hanno's account suggests that the animals encountered by his party were probably not gorillas. In the first place, gorillas when pursued do not run away and then throw things at their pursuers, —they either run away, or else the leader of the small group stays to hold the enemy at bay while the rest make good their escape. The gorilla will attack only when he is seriously provoked.[12] As Cary and Warmington have pointed out in this connexion, "It is disputable whether these were a primitive race of human dwarfs, or, as seems more likely, chimpanzees, a tailless tribe, and eminently anthropoid, whose males are better runners than fighters. They were certainly not the powerful brutes whom we call gorillas. In that case all the scampering would have been done by Hanno's party." [13]

In the second place, any man who ever got within the range of an adolescent or mature female gorilla, would hardly be in a position to act as a "captor" or "conductor" to it, —he would literally be crushed. On the other hand, young chimpanzees might be approached with results such as Hanno relates.

McDermott refers to Elliot's presentation of Du Chaillu's account

[10] Paul B. Du Chaillu, *Explorations and Adventures in Equatorial Africa.* London, 1861, p. 58.

[11] A. Mer, *Mémoire sur le Périple d'Hannon,* Paris, 1885, p. 54, observes that "Il est remarquable que, dans la langue yolofe, celle que parlaient probablement les interprètes d'Hannon, un grang singe se dit *goloh* ou *gorhl,* qui se rapproche singulièrement du mot gorille, dont se sert Hannon pour désigner ces animaux."

[12] Paul Du Chaillu, *op. cit.* pp. 58-72; Thomas S. Savage, "Notice of the external character and habits of a new species of Troglodytes (T. *gorilla,* Savage) recently discovered by Dr. Savage near the river Gaboon, Africa." *Proc. Boston Soc. Nat. Hist.,* vol. 2, pp. 245-247; R. Hartmann, *Anthropoid Apes.* London, 1904, pp. 225-236; R. M. Yerkes and A. W. Yerkes, *op. cit.* pp. 401-411, in which will be found a complete account of the literature relating to the habits and mode of life of the gorilla.

[13] M. Cary and E. H. Warmington, *op. cit.* p. 51.

of the capture of female gorillas by native hunters in order to eliminate the objection raised by the ferocity and strength of the gorilla. It is perhaps unfortunate that the testimony of Du Chaillu should have been brought forward here, since the severe criticism to which that remarkable traveller's stories have been subjected do not lend them the kind of authority which some students would care to accept in matters of such a critical nature.[14] Nonetheless, if we are to have Du Chaillu's testimony it may as well be pointed out here that in his first work Du Chaillu, after considering Hanno's account in the "Periplus," came to the conclusion that the animals captured by his party were chimpanzees.[15] In a later work Du Chaillu modified this conclusion in favour of the gorilla. Since this statement is rarely referred to, I quote it here.

> After reconsidering the whole subject, I am compelled also to state that I think it highly probable that gorillas, and not chimpanzees, as I was formerly inclined to think, were the animals seen and captured by the Carthaginians under Hanno, as related in the "Periplus." Many circumstances combine in favour of this conclusion. One of the results of my late journey has been to prove that gorillas are nowhere more common than in the tract of land between the bend of Fernand Vaz and the seashore; and, as this land is chiefly of alluvial formation, and the bed of the river constantly shifting, it is extremely probable that there were islands here in the time of Hanno. The southerly part of the land is rather hilly, and even if it were not then an island, the Carthaginians in rambling a short distance from the beach would see a broad water (the Fernand Vaz) beyond them, and would conclude that the land was an island.
>
> Gorillas are attracted to this district by the quantity of a little yellow berry called mbimo, growing there on a tree resembling the African teak, and by the abundance of two other kinds of fruits, of which they are very fond, and which grow on the sandy soil of this part of the coast-land. . . .

Du Chaillu then quotes Hanno's passage from the "Periplus," and continues:

[14] In fairness to Du Chaillu it should be stated here that the extent to which such criticism has been justly informed remains yet to be determined. As a devoted reader of Du Chaillu I must confess that I enjoy the dramatic style of his writing, and that I have never found him pulling a bow so long as to put any undue strain upon my credulity.

[15] Du Chaillu, *op. cit.* pp. 343-345.

These statements appear to me, with the fresh knowledge I have gained on the present expedition, to agree very well with the supposition that the bold Carthaginians reached the country near the mouth of the Fernand Vaz in their celebrated voyage, and that the hairy men and women met with were males and females of the *Troglodytes gorilla*. Even the name "gorilla," given to the animal in the "Periplus," is not very greatly different from its native name at the present day, "ngina" or "ngilla," especially in the indistinct way in which it is sometimes pronounced. I now think it more likely that the gorilla was the animal seen and not the chimpanzee, which is generally less gregarious, and is not often found near the sea-coast. As to the theory that Hanno's hairy men were some species of baboon, I think that very unlikely; for why would the Carthaginians hang the skins in the temple of Juno on their return to Carthage, and preserve them for so many generations, as related by Pliny, if they were simply the skins of baboons, animals so common in Africa that they could scarcely have been considered as anything extraordinary by a nation of traders and travellers like the Carthaginians.

The gorilla is of migratory habits at some seasons of the year. He is then not found in the districts usually resorted to by him when the berries, fruits and nuts are in season.[16]

Du Chaillu's statement that the gorilla is generally more gregarious than the chimpanzee is incorrect. Both animals live in small family bands.[17] With respect to the capture of female gorillas by native hunters, in the passage referred to Du Chaillu speaks of dead and wounded gorillas, and adds "this incident led me to modify somewhat the opinions I had expressed in "Adventures in Equatorial Africa," regarding some of the habits of the gorilla. I there said that I believed it impossible to capture an adult female alive, but I ought to have said wounded."[18]

It will be seen from these passages that Du Chaillu is not really of much help. The evidence, such as it is, still favours the belief that the animals were chimpanzees rather than gorillas, but for all that it is not impossible that they were gorillas. But while we are on this subject, does it not appear strange that the following passage from the "Periplus" has been completely overlooked?

[16] Paul B. Du Chaillu, *A Journey To Ashango-Land*. New York, 1867, pp. 57-59.

[17] R. M. Yerkes and A. W. Yerkes, *op. cit.* pp. 246-255, 430-441; H. C. Bingham, *op. cit.*; and H. W. Nissen, *A Field Study of the Chimpanzee*, Comparative Psychology Monographs, vol. 8, No. 1, Ser. No. 36, pp. 16-24.

[18] Paul B. Du Chaillu, *A Journey to Ashango-Land*, p. 56.

"Τούτων δὲ καθύπερθεν Αἰθίπες ὤκουν ἄξενοι, νεμόμενοι θηριώδη, διελημμένην ὄρεσι μεγάλοις ἐξ ὧν ῥεῖν φασι τὸν Λιζον, περὶ δὲ τὰ ὄρη κατοικεῖν ἀνθρώπους ἀλλοιομόρφους, τρωγλοδύτας· οὓς τακυτέρους ἵππων ἐν δρόμους ἔφραζον οἱ Λιξῖται." [19]

Could the τρωγλοδύτας of this passage have been a chimpanzee?

Following Hanno the first account of an animal which may well have been a gorilla is represented by that given to Purchas by Andrew Battel. Battel was for a time associated with the Portuguese in Angola early in the 17th Century.[20] We need not reproduce the relevant passage here. Hartmann [21] and Yerkes and Yerkes [22] consider that the animals referred to in Battel's account may have been gorillas, but as the latter authors observe "even if we are correct in this surmise, we grant that knowledge of the African anthropoids was not advanced much by the Battel report." [23]

The second reference to what may well have been a gorilla occurs in a famous work by Lord Monboddo.[24] In this work is printed a letter from a former "captain of a ship trading with the slave coast of Africa" in which an 'Impungu' is described and compared with a 'Chimpenza.' It seems probable that the 'Impungu' referred to in this letter was the gorilla.

The third and final reference to what was probably a gorilla, before Savage and Wyman's proof of the actual existence of such an animal, occurs in Bowdich's remarkable book published in 1819.[25] In this work Bowdich speaks of the "Ingēna," concerning which he had heard a great deal, but which he himself never saw. There is little doubt that the "Ingena" of which he heard so much was the gorilla.

These three solitary references are all that we have from the

[19] Hanno, *Periplus.* #7, Editio Carolus Mullerus, *op. cit.* p. 6.

[20] Samuel Purchas, *Hakluytus Posthumus, or Purchas his Pilgrimes.* 4th Edition, London, 1625, vol. 2, pp. 981-982.

[21] Hartmann, *op. cit.*, p. 4.

[22] Yerkes and Yerkes, *op. cit.*, p. 10. [23] *Ibid.*

[24] James Burnet Monboddo, *Of the Origin and Progress of Language.* London, 1774, vol. 1, p. 281. Yerkes and Yerkes, *op. cit.*, p. 23.

[25] T. E. Bowdich, *Mission from Cape Coast Castle to Ashantee.* London, 1819, pp. 440-441. Yerkes and Yerkes, *op. cit.*, p. 31.

time of Hanno up to the year 1847 when the existence of the gorilla was finally established.

It may now be apparent why McDermott's identification of a figure on an Eighth Century (B. C.) bowl from Cyprus as a gorilla is somewhat startling. If the animal shown on this bowl is a gorilla it would then become necessary to put the first definite record of this animal back by more than two thousand years. It is therefore not without some importance to determine whether or not the figure depicted on this bowl was intended to represent a gorilla.

McDermott makes the claim that the gorilla is depicted on two separate bowls which probably originated in the same Phoenician-Cypriote workshop. The first is a shallow silver bowl [26] recovered from the Bernardini tomb at Praeneste (Palestrina) in 1876, and now in the Museo Preistorico at Rome, and the second a bowl from Cyprium Curium [27] now in The Metropolitan Museum of Art at New York. These two bowls have on several previous occasions formed the subject of a discussion as to whether or not the gorilla was meant to be portrayed in either of them. I shall refer to these discussions below. The main scene of the Bernardini bowl is thus described by McDermott:

> 1. A hunter who wears semi-oriental dress is driven out of a walled city by a female chariot driver. . . . 2. The hunter has roused a stag which leaps from the top of a rocky hill. 3. The hunter has climbed the hill and mortally wounded the stag. 4. The chariot driver has unharnessed and is feeding the horses, while the hunter cuts up the deer. 5. The hunter seated on a stool is about to dine. On a stand in front of him is a dish of venison, on another a bowl of wine. Above is a winged sun-disc watching over the feast. From a cave in the side of a hill a gorilla reaches out to steal the meat. This scene presumably is the midday meal. 6. The gorilla has now come out of the cave and holds in its right forepaw a purloined bowl of wine, in its left a branch of a tree. The older interpretation that the animal is attacking by throwing a rock is incorrect. The hunter notices the theft and invokes the aid of his god. This deity, pictured with broad wings and face in full view, carries the hunter and his chariot in pursuit of the gorilla. . . 7. The hunter in his chariot, again on the ground, pursues the gorilla,

[26] No. 329 in McDermott's Catalogue, pp. 234-238, where the full bibliography relating to the bowl is given together with its description.

[27] No. 330 in McDermott's Catalogue, p. 238.

which stumbles and falls in its flight. 8. The hunter now dismounted dispatches the animal with his axe. 9. The hunter returns to the city in the evening.[28]

The Bernardini bowl was not readily available for examination, but the bowl at New York was. By the courtesy of the authorities of The Metropolitan Museum of Art at New York this precious work was removed from its exhibition case in the Gold Room of the Cesnola Collection and made available to me for examination.[29] Following my examination of the bowl the Museum, at my request, made a photograph of the part of the bowl referred to in McDermott's description, which, with the permision of the Museum, I am able to reproduce here. The Cyprian bowl, as McDermott points out, is so similar to the Bernardini bowl in almost all details that it may be safely assumed " That they probably came from the same workshop. . . ." " The differences in the second part of the outside band will be noted. The gorilla, holding the bowl, is just coming from the cave in the hill instead of standing in front of it. When the king is attacking, the gorilla is not crouching but has its forepaws down on another mound. In the next scene the gorilla has its arms bound. As a whole the scene is less lifelike and less vigorous." [30]

Now, what shall we say of the two hunted figures on each side of the mound (scenes 7 and 8) in the photograph reproduced in this article (Fig. 1)? I suggest that anything we might say of them would be little more than guesswork. The figures in the Bernardini bowl have been variously identified as a mandrill,[31] a gorilla,[32] a bestial monster,[33] or simply as a monster.[34] Helbig [35] considered that

[28] McDermott, *op. cit.*, pp. 235-236.

[29] I am particularly indebted to Mr. Fieldman of the Department of Classical Archaeology for his many courtesies in this connexion.

[30] McDermott, *op. cit.*, pp. 237-238.

[31] Boll in a personal communication to W. Helbig, " Cenni Sopra L'Arte Fenicia." *Annali Dell'Instituto Di Corrispondenza Archeologica*, vol. 48, pp. 197-257.

[32] C. Clermont-Ganneau, " La coupe phénicienne de Palestrina." *Journal Asiatique*, ser. 7, vol. 9, 1878, pp. 247-270.

[33] F. Poulsen, *Der Orient und die frühgriechische Kunst.* Berlin, 1912, pp. 24-25.

[34] C. D. Curtis, " The Bernardini Tomb." *Memoirs of the American Academy in Rome*, vol. 3, 1919, pp. 41-42.

the figure was probably intended to represent a dog-headed baboon. Marquand is of the opinion that the figure in the Curium bowl does not represent a gorilla, but a hairy troglodyte.[36] Myres cautiously terms the figure a giant.[37]

I do not propose to venture a guess as to the nature of this creature. Certainly I cannot see any good reason for assuming that it represents, or was intended to represent, a gorilla. McDermott writes "It is obvious . . . that this is not a perfectly lifelike depiction of a gorilla. The arms are too short, the legs are too long and well-formed, the head is too large, the beard and hindpaws are too human. None the less the complete hairiness of the body, the massive size, the forepaws, and most of all the general appearance point to the gorilla."[38]

Allowing for the inaccuracy of the artist, it is difficult to see why all these features do not point with even greater force to a bestial monster or a giant. What, in any event, would knowledge of the gorilla be doing in Cyprus, some 2600 miles away from the nearest known range of the gorilla? Or in Phoenicia, almost as far away? Or in Egypt? Is it possible that some Cypriote or Phoenician traveller brought back the knowledge of this animal from equatorial Africa, and that the designer of these bowls portrayed the animal to the best of his ability from the description supplied by such a traveller? The answer is that it is not impossible, but that we do not know. On the other hand, where would a king, who has conjecturally been identified with the mythical founder of Cyprus, namely Cinyras,[39] be found hunting "gorillas"? And in his chariot? Surely not in equatorial Africa? And as surely not in Egypt, Phoenicia or Cyprus? Is it not more likely that the scenes depicted in these bowls are not intended to be historical representations of events, but the pictorial representation of a myth?

[36] W. Helbig, *Bull. d'Inst.*, vol. 6, 1876, pp. 126-128.

[37] A. Marquand, "A Silver Patera from Kourion." *American Journal of Archaeology*, vol. 3, 1887, pp. 322-337.

[38] J. L. Myres, *Handbook of the Cesnola Collection of Antiquities from Cyprus*. New York, 1914, pp. 463-464.

[39] McDermott, *op. cit.*, pp. 236-237.

[40] *Ibid.*, p. 335.

That all the figures depicted in these scenes are mythical, and that the so-called "Gorilla" really represents the figure of a mythical monster, half man and half beast, and that if this is so then the resemblance to the gorilla or to any other man-like ape would in any event necessarily be striking? I suggest that in the circumstances this is the most reasonable view to take of the nature of this creature. Whatever it may have been intended to represent there appears to be some reason to believe that the artist placed it in a habitat which is peculiar to an ape with which he was probably familiar. Thus, the fact that the figures shown in the bowl possess an elongate nose or muzzle, and the fact that they are shown emerging from a cave situated in a rocky region, strongly suggests the baboon *Papio hamadryas,* an animal which is well covered with hair, and possesses a very attractive mane—all characters delineated in the bowls. The hamadryas baboon lives among the rocky fastnesses of Abyssinia. The gorilla very definitely does not live in caves or among rocks, but in the open forest. The statements also apply to another group of figures which McDermott thinks to represent gorillas. These figures are present on a terracotta relief of Egyptian origin in the Berlin Antiquarium (Inv. 31276). Here, according to McDermott, "A female gorilla, holding two young gorillas, sits on a rock at the opening of a cave." [40]

Without further prolonging this discussion, I believe that we may legitimately conclude that the figures on the bowls from Praeneste and Cypriote Curium do not in the least throw any light upon the knowledge possessed by the ancients of the apes in general and of the anthropoids in particular. And finally, that the creatures depicted in these scenes were probably not intended to represent gorillas.

There are several other points in McDermott's valuable book which may profitably be discussed here.

In commenting upon Agartharchides' description of the sacred baboon of Egypt, (*Papio hamadryas,* Abyssinia), McDermott writes "The statement that the womb of the female hangs outside the body must be due to the observation of a diseased animal, or to confusion with the ischial callosities which are present in this species." [41]

[40] *Ibid.,* pp. 296-297.

[41] *Ibid.,* p. 66.

Since McDermott does not give the relevant passage in his text I do so here. "*περὶ μὲν τὸν ἄρρενα ταῦτα· τῷ δὲ θήλει πρόσκειται καὶ τὸ τὴν μήτραν ἔξω σώματος φορεῖν καὶ οὗτο διάγεσθαι πάντα τὸν βίον.*" [42]

It appears to me more likely that what Agartharchides was here describing was neither a diseased animal nor its ischial callosities, but rather the sexual skin of the female baboon at the time of its maximum enlargement. In this animal, it is well known, that the swelling of the sexual skin frequently reaches staggering proportions. Normally the swelling is very considerable, and to anyone acquainted only superficially with the anatomy of the baboon this swelling would certainly suggest what it appears to have suggested to Agartharchides.[43] In this account Agartharchides has given what probably constitutes the first record of the sexual skin phenomenon in the primates. In many primates, but particularly in the hamadryas baboon, of which Agartharchides was speaking, the subcutaneous regions of the perineum and adjacent areas become tremendously enlarged and reddened, so that the animal presents the appearance of housing the greater part of its urogenital apparatus in this greatly swollen and apparently pendulous structure. This was probably the phenomenon which Agartharchides was unknowingly describing when he noted the external position of the womb in the female baboon.

McDermott mentions Aristotle's reference to the χοιροπίθηκος, the "pig-ape," [44] and states that this animal cannot be identified.[45] As a matter of fact Aristotle's χοιροπίθηκος can be identified with a probability which amounts to practical certainty. *Papio porcarius*

[42] *Ex Agartharchides De Mari Erythraeo Libris Excerpto.* Editio Carolus Müllerus, *Geographi Graeci Minores.* Parisis, 1882, # 74, p. 160.

[43] The sexual skin is that part of the integument, usually of the perineal region, which undergoes a periodic reddening and swelling during the sexual cycle. This phenomenon is sporadically distributed among the primates. See S. Zuckerman, *The Social Life of Monkeys and Apes.* New York, 1932, in which the sexual skin swelling of the baboon is described as sometimes reaching "relatively enormous" proportions, pp. 92-93. See also the same author's *Functional Affinities of Man, Monkeys, and Apes.* London, 1933, pp. 40-47. See also M. F. Ashley-Montagu, "Adolescent Sterility." *The Quarterly Review of Biology,* vol. 14, 1939, pp. 28-33.

[44] Aristotle, *Historia Animalium.* Lib. 2, Cap. 11.

[45] McDermott, *op. cit.,* p. 93.

(variously known in the older literature as *Cynocephalus porcarius*, *Simia porcarius*, *Cynocephalus ursinus*, and in common parlance as the chacma) "the pig-ape or baboon," has a physiognomy which is very pig-like, its snout protruding above its upper lip. This animal is found throughout the greater part of South Africa south of the Limpopo River. When young it makes an excellent and intelligent pet; but with age its temper suffers a change for the worse, and it becomes a ferocious and dangerous animal. There is some evidence that juvenile individuals of this species found their way to Alexandria at an early period. Ehrenberg reports seeing examples of this species in that city during the early part of the last century.[46] We have not far to go, therefore, to account for Aristotle's acquaintance (or for his informant's acquaintance) with this ape. As supporting this identification of χοιροπίθηκος with *Papio porcarius* may be cited the fact that when discussing the chameleon Aristotle curiously remarks that "its face is like that of the choeropithecus." [47] The common chameleon (*Chamaeleon chamaeleon*) which is found in the countries bordering the Mediterranean has a sort of snub-faced head which may very well be likened, in appearance, to that of the chacma. It would seem that in this passage Aristotle wished to emphasize the snub-facedness of the chameleon and hence suggested that condition by comparing its face with that of the choeropithecus. Had he desired to make the reference to a long-snouted animal he would surely have made the comparison with the cynocephalus ape, that is, the hamadryas baboon which is distinguished by its dog-like elongate snout. For this reason it is difficult to accept both Rennie's [48] and Lesson's [49] early, unsupported identification of choeropithecus with the hamadryas baboon ("Papion des anciens, Hamadryas choeropithecus"). On the other hand, while by no means certain of the species of ape intended by Aristotle's choeropithecus,

[46] C. G. Ehrenberg, *Naturgeschichtliche Reisen Durch Nord-Afrika und West-Asien in Den Jahren 1820 bis 1825 von Dr. W. F. Hemprich und Dr. C. G. Ehrenberg.* Berlin, Posen und Bromberg, 1828.

[47] Aristotle, *op. cit.*, Lib. 2, Cap. 7.

[48] [J. Rennie,] *The Menageries. The Natural History of Monkeys, Opossums, and Lemurs.* London, 1838, p. 437.

[49] M. R.-P. Lesson, *Spécies des Mammiferes Bimanes et Quadrumanes.* Paris et Londres, 1840, pp. 109-110.

Reichenbach[50] refers to the chacma as *Choiropithecus porcarius,* as if to rub the fact of its piggish appearance doubly in; while Bennett,[51] to whose work Reichenbach refers, apparently speaks of this animal as the " pig-faced baboon."

There has never, I suppose, been a work, however exhaustive and scholarly, which did not overlook some things which, had they been known to the author, would have been included. A work of the first importance of which no mention is made in Professor McDermott's book is Edward Tyson's (1650-1708) *A Philological Essay Concerning the Pygmies, The Cynocephali, The Satyrs and Sphinges of the Ancients,* which forms the second part of his notable work *Orang-Outang.*[52] This work, of 58 quarto pages, is both of relevance and importance because it constitutes the first scientific discussion of the nature of the knowledge of the ancients relating to the apes and to ape-like creatures. Two and a half centuries after it was written this work still remains one of our most valuable sources, as well as one of the most readable.[53]

While Professor McDermott has a number of references to Ctesias' Indian *History,* there is no reference to Ctesias' account of the *martichora* or *mantichora.* Since this alleged ape-like creature was discussed by Ctesias,[54] Pliny,[55] Aristotle,[56] Pausanias,[57]

[50] H. G. L. Reichenbach, *Die vollständigste Naturgeschichte der Affen.* Dresden, 1863, pp. 151-152.

[51] E. T. Bennett, *The Gardens and Menagerie of the Zoological Society Delineated.* London, 1830, vol. 1, p. 147. I have been unable to find such such a statement in Bennett's book.

[52] Edward Tyson, *Orang-Outang, sive Homo Sylestris: Or, The Anatomy of a Pygmie Compared with that of a Monkey, an Ape, and a Man.* London, 1699.

[53] The first, and longest, Essay was reprinted in 1894 together with a not entirely accurate introduction by Bertram C. A. Windle, *A Philological Essay Concerning the Pygmies of the Ancients.* London, David Nutt, 1794.

[54] *The Library of Photius. Ctesias, History of India.* (Translated by J. H. Freese). London, vol. 1, p. 112.

[55] *The Natural History of Pliny.* (Translated by J. Bostock and H. T. Riley). London, 1855, vol. 2, p. 280.

[56] Aristotle, *The History of Animals.* (Translated by Richard Cresswell). London, 1862, Bk. 2, Sect. 10, pp. 30-31.

[57] Pausanias, *Description of Greece. Boeotia.* Bk. 9, Chap. 21.

Aelian,[58] Solinus,[59] Scaliger,[60] Bochart,[61] and others, it well deserves a place in the chronicles of the historian of such matters. This is what Ctesias has to say about this charming creature, the *martichora*:

> The *martikhora* is an animal found in this country. It has a face like a man's, a skin red as cinnabar, and is as large as a lion. It has three rows of teeth, ears and light-blue eyes like those of a man; its tail is like that of a land scorpion, containing a sting more than a cubit long at the end. It has other stings on each side of its tail and one on the top of its head, like the scorpion, with which it inflicts a wound that is always fatal. If it is attacked from the distance, it sets up its tail in front and discharges its sting as if from a bow; if attacked from behind, it straightens it out and launches its stings in a direct line to the distance of a hundred feet. The wound inflicted is fatal to all animals except the elephant. The stings are about a foot long and about as thick as a small rush. The martikhora Persian mardikhora is called in Greek *anthropophagos* (man-eater), because, although it preys upon other animals, it kills and devours a greater number of human beings.[62] It fights with both its claws and stings, which, according to Ctesias, grow again after they have been discharged. There is a great number of these animals in India, which are hunted and killed with spears or arrows by natives mounted on elephants.[63]

It seems not unlikely that Ctesias' description of this fantastic creature was based upon the hieroglyphic figures which, in his day, were common in the east. These figures were in the form of stelae and monuments showing lion-like animals with barbed tails and human faces, and were first recovered in numbers during the nineteenth century from the ruins of Assyrian and Persian cities such as Nineveh and Persepolis.

The reference to hunting the *martichora* by natives mounted on elephant reminds us of a line in Horace which, according to one

[58] Aelian, *Historia Animalium*. Lib. 4, Cap. 21.

[59] C. J. Solini, *Polyhistor, Rerum Toto Orbe Memorabilium thesaurus locupletissimus*. Basiliae, 1538, Cap. 65, Sect. 19, p. 135.

[60] J. C. Scaliger, *Aristotelis Historia de Animalibus*. Tolose, 1619, Lib. 2, Cap. 11, Sect. 70, pp. 188-189.

[61] S. Bochart, *Hierozoicon sive bipartitum Opus de Animalibus*. Francfourti, 1675, Lib. 3, Cap. 11, p. 838.

[62] Which reminds us of A tiger, by taste anthropophagous, Felt a yearning within his oesophagus, He spied a fat Brahmin, And growled Where's the harm in, A peripatetic sarchophagus?

[63] Ctesias, *op. cit.*

critic, has for centuries provided translators with the opportunity of transmuting an ape into an elephant! The first line of Horace's 12th Epode asks

Quid tibi vis, mulier nigris dignissima barris?

The word "barris" has always been translated as "elephant" (*barrus*), but it has been urged that the sense of the poem is strongly against the animal referred to being an elephant, and renders it likely that Horace had in mind an ape,[64] "nigris barris," the black ape, possibly the Barbary ape. *Barris*, interestingly enough, is the word for "ape" which was used by Battel.[65] It should, however, be obvious upon purely grammatical grounds that Horace actually had the black elephant in mind and not the black ape.

[64] This suggestion was first made in 1773 by Sir John Pringle, the Father of Military Medicine, to his friend John Burnet, Lord Monboddo. See Monboddo's letter to Sir John Pringle, 16 June 1773, where he writes, "You have taken occasion to explain most ingeniously a passage of a very favourite author of mine, which I never understood. I mean the passage of Horace concerning the *Nigri Barri*, of which your interpretation makes excellent sense; whereas, in the way that it is commonly understood, it is I think absolute nonsense. For, besides what you have observed of the chastity of the elephant, the epithet of *nigri* does not agree with the elephant—at least with any I ever saw—and so chaste and correct a writer as Horace never could think of coupling even the lewdest woman with an elephant." (William Knight, *Lord Monboddo And Some of his Contemporaries*. London and New York, 1900, pp. 85-86. See also Lord Monboddo, *Of The Origin and Progress of Language*. 2nd Edition, Edinburgh, 1774, vol. 1, pp. 275-276.

[65] Battel, *loc. cit.*

MEDICAL APHORISMS, CHIEFLY IN ENGLISH

SIR HUMPHRY ROLLESTON

Introduction

The word aphorism (ἀφορισμός — a definition, a separation) has itself often been defined. According to that scholarly general practitioner, Francis Adams (1796-1861) of isolated Banchory Ternan, Aberdeenshire, it was described by Galen (130-200 A. D.) as "a writing of great power comprehended in few words," and the early commentators of the Hippocratic aphorisms, Theophilus, Meletius and Stephanus, agreed that it was "a succinct saying, comprehending a complete statement" and that, from its derivation, "the thought in every instance is defined and distinctly separated from what goes before and succeeds it. Modern definitions are "a short pithy saying" (Skeat, 1898); "a definition or concise statement of a principle in any science," or as "any principle or precept expressed shortly and pithily" (The Shorter Oxford English Dictionary, 1933); "a principle expressed tersely in few telling words or any general truth conveyed in such a way that when once heard, it is unlikely to pass from the memory" (Encyclopaedia Britannica, 1910, Vol. ii); "a concise statement of some truth generally more or less abstract (The Harmsworth Encyclopaedia, Vol. i, p. 282). Pearsall Smith welcomed the definition of aphorism as "a proverb coined in a private mint." Apophthegm (ἀπόφθεγμα) preferred by Samuel Johnson and by H. W. Fowler to apothegm, which conceals its derivation, is practically a synonym for aphorism, and is defined as "a terse, pointed saying, embodying an important truth in few words; a pithy or sententious maxim" (Shorter Oxford English Dictionary). Pearsall Smith, who so fully discussed "What exactly is the aphorism?", quotes its use as a spoken aphorism, but adds that "these distinctions of the rhetoricians are not of much importance and have seldom been observed in the current use of the words." According to Geoffrey Keynes an aphorism, if it is not to be platitudinous, must spring from individual experience and conviction; surgical aphorisms must therefore be subject to the same limitations

as the writer's experience; an aphorism is not merely a condensation of known facts, but must contain something of originality. *Sentence* and *gnome* are synonymous for aphorism but are seldom used now, though F. H. Garrison (1870-1935) in 1929 translated those of Ramón y Cajal under the heading " sentences." *Gnomologia, adagies, proverbs, wise sentiments, and witty sayings, ancient and modern, foreign and British* (1732) was the title of one of the three similar collections made by Thomas Fuller (1654-1734) the physician.

The word aphorism was first used in a medical sense and in the aphorisms of Hippocrates, though Heraclitus of Ephesus (?556-?460 B. C.) anticipated the Father of Medicine as the founder of aphorismal or gnomic form. The aphorism " was expanded to include sententious statements about physical science and later of all kinds " (Encyclopaedia Britannica). The aphoristic style is seen in the papyri of ancient Egypt and in the Bible; Thomas Fuller, the physician, in his published collection of 3,152 *Directions, counsels and cautions* (1727) for the guidance of his " dear son," gave many extracts from the Psalms, Proverbs and Gospels. He must not be confused with the shorter lived but much more famous author of the *History of the Worthies of England* (1662), Thomas Fuller (1608-1661) the divine, who was not silent about the medical profession, and said:

> physicians, like beer, are best when they are old.

The best aphorisms enunciate a fine truth, as in the immortal first dictum of Hippocrates:—

> Life is short, and the art long; the occasion fleeting; experience fallacious, and judgement difficult.

With such the shrewd sometimes commercial maxims of later days contrast badly, for example those of J. R. J. Amédée Latour (1805-1882), whose thesis for the Paris doctorate: *Propositions sur l'art de guérir* (No. 295, 1834) consisted, as was rather fashionable at that time, of short dogmatic aphoristic statements, in this instance 42. These as regards anatomy and physiology, were admittedly culled from his teacher Broc. ,Described after his death as shy, he was for

nearly half a century a medical editor in Paris and the reputed author of many cynical sayings, such as:—

> Life is short, and the art long; the occasion fleeting; experience fallacious, Practice is a field of which worldly wisdom is the manure.

> Simplicity, modesty, truth! charming things everywhere else than by a patient's bedside where "simplicity" is taken to be hesitation; "modesty" diffidence of oneself; "truth" roughness.

> Medicine is the only profession of which lying is a duty.

An aphorism should be a brief, dignified, and preferable positive definition, though a "turn" of humour and to some degree of paradox (a statement contrary to accepted opinion) need not be excluded. Two sayings on the same subject may be compared:

> The best claim that a college education can possibly make on your respect, the best thing it can aspire to accomplish for you, is this: that it would *help you to know a good man when you see him.* (William James).

Described by the author as a synthetic formula, this may be accepted as a satisfactory aphorism. But the following, the originator and exact working of which have not been verified, though crisp and arresting, is of a negative and somewhat pessimistic character:—

> The great advantage of going to a University is that you never can regret that you did not.

Aphorisms embody the results of mature experience or thought; thus in a valedictory address in 1884 Alfred Stillé (1813-1900) summed up the whole matter,

> Only two things are essential, to live uprightly and to be wisely industrious.

Old age, however, is not an obligatory qualification; Sir Thomas Browne (1605-1682) whose *Religio Medici* (1642) might well be described, in company with the writings of Sir Francis Bacon (1561-1626), "the father of modern philosophy," of Samuel Johnson (1709-1784), and R. W. Emerson (1803-1882), as "a mosaic of aphorisms," was composed about 1634-5 when he had "not seen one revolution of Saturn (30 years), nor hath my pulse beat 30 years."

According to Samuel Johnson "it is one of the maxims of the civil law that definitions are hazardous," and it is certainly hard to

conform to all those of an aphorism, especially those to the effect that the statement should be distinct from the context and at the same time short. If not brief it might be thought to be more suitable for inclusion in a prose anthology. It is not improbable that some of the aphorisms quoted later may arouse criticism from experts, should any glance at them. However desirable, a sharply cut distinction may be between aphorisms and other short phrases, such as axioms and maxims, proverbs and adages, *obiter dicta*, and epigrams, this is not always practicable or convincing; they may merge into each other and overlap, in spite of definitions which crystallize out the most characteristic types. As a result of these difficulties they are often found side by side in reference books of quotations and phrases, and in works, such as *The medical axioms, aphorisms, and clinical memoranda* (1923) of J. A. Lindsay (1856-1931), the 930 items giving a picture of his reading and observations. It may be suggested that the aphorism is the complete form, and the others incomplete or *fruste* forms, which are short and original but with other prominent characters, such as wit, sarcasm, satire, sharp contrast or surprise, that are not essential elements in an aphorism. The exact meanings of the following words, akin to aphorism, as given by authoritative sources, from P. M. Roget's *Thesaurus* (1852) to the Shorter Oxford English Dictionary (1933), vary considerably, and a somewhat difficult compromise has been attempted.

Axiom from the Greek ἀξίωμα — a self-evident well-established rule or law, and maxim from the Latin, sc. *propositio*, a most important principle, are the same, and do not imply any originality. Theorem is a proposition not self-evident, but for proof by argument, scientific or mathematical. Theory is a hypothesis proved by experiment or observation, such as the Newtonian and Darwinism, and should not be used for a speculative or irresponsible idea; Allbutt defined it as "the highest mode of scientific or analytical truth." Proverbs and adages are the wise sayings of antiquity and therefore usually anonymous. *Obiter dicta* or incidental statements, not essential to a legal decision, have been used, for example by Sir J. K. Fowler, for comments often epigrammatic (see p. 559). Epigram is defined as "a short poem ending in a witty or ingenious turn of thought," or as "a pointed or antithetical saying" (Shorter Oxford English Dictionary), but it is by no means necessarily in verse and is applied to any pungent or smart saying, and is of much lighter weight than an aphorism which is a more or less

solemn pronouncement of solid fact. Satire and irony, even if they do not hurt anyone's susceptibilities hardly come under the heading of aphorism, but there may be exceptions: a mediaevel Hebrew satire on the medical profession, the Physician's *Aphorisms*, ascribed to Maimon Galipapa, probably in the thirteenth century, was to some extent an imitation of the Hippocratic aphorisms and evidence of their popularity (Friedenwald). Epigrams share with aphorisms the virtue of brevity and some might therefore feel that there is a case for the recognition of a hybrid, the aphorism-epigram.

Confucianism (the doctrine or system of Confucius, fl. B. C. 500) was in 1880 used in English by James Legge (1815-1897), the first professor of Chinese at Oxford; but about 1938 it was adopted in American journalese for modern inventions of an epigrammatic style, such as "girl with future should beware of man with past," and even, in a modified form for advertisements.

The Preservation of Aphorisms: As aphorisms are a means of oral tradition especially in ancient times, they may thus, like anonymous proverbs, outlive the fame of their authors. They may be collected by the admirers of a teacher, with his approval and guidance, as in the case of Samuel Jones Gee's clinical aphorisms (see p. 557) and the prose anthology of Sir William Osler's *Counsels and ideals* (1905) brought out by C. N. B. Camac; or the publication may be the private venture of their parent, like a condensed autobiography; such were those of Hermann Boerhaave (1668-1738) in 1709, and of Maximilian Stoll (1742-1787) in 1785. William Heberden the elder (1710-1801) completed his *Commentaries* in August 1780, but they were not published until a year after his death. Aphorisms may be collected from the speaker's lips and treasured up, or they may be extracted from his published works, or rescued from manuscript notes discovered after his death, as in the case of Sir William Gull (see p. 556).

Collections of the aphorisms of others vary according to the knowledge and scope of the reading of the selectors.

Thus out of about 1465 English aphorisms collected by Pearsall Smith there were only 9 under the heading of "health and disease" and 30 in the last of the 73 sections, that on "death." Aphorisms from Sir Thomas Browne in the sections other than that on "health and disease" number 26, but his follower at Pembroke College, Oxford, Samuel Johnson, is credited with more than 300 aphorisms.

John (Lord) Morley (1838-1923), an active opponent of established dogma spoke of "the aphoristic person" without enthusiasm, and rated the quality of British aphorisms far behind that of the French, but his advice to a would-be aphorist "beware of cultivating this delicate art" is quoted as an aphorism by Pearsall Smith.

Uses of Aphorisms

Aphorisms may be mnemonic and an important help in oral tradition by providing, in an easily remembered form, information of value which otherwise might have been lost. Their collection is thus like the skeleton of a text-book; further, they may serve as a lasting memorial, erected by pupils, to a great teacher. They not only attract readers, who, however, would be well advised to ration their intake at any one time of such concentrated mental food, but also appeal to and stimulate others to compose their own. The value of aphorisms necessarily varies with the qualities, such as judgment and originality, or of prolixity, of their authors, some of whom, even the great Soranus of Ephesus (second century A. D.), have been criticized as prone to be oracular and "utter aphorisms to be learned by rote." (Allbutt, 1921).

Examples of Medical Aphorisms

Most of the famous aphorisms of Hippocrates are accepted as genuine, because they are often identical, or almost word for word, with those in other parts, regarded as authentic, of the *Corpus Hippocraticum*. It has, however, been suggested that the transfer may have been made in the opposite direction, namely from the aphorism to the several other works (W. A. Greenhill). But gradually additions and appendices crept in; for example the eighth and last of the modern arrangement in sections of the aphorisms has been considered to be apocryphal. Further, it is uncertain whether or not Hippocrates in his old age, as often stated by Galen, took a hand in the selection of the aphorisms, or others chose them from his writings.

Many commentaries have been made on these aphorisms, as is shown in the Index-Catalogue of the Library of the Surgeon-General's office (Series 2, Volume V, 1905). Reference may be made

to a special series of articles on the aphorisms of Hippocrates illustrated by the commentaries of the Greek physicians, such as Apollonius, Palladius, Stephanus and Theophilus, with notes in 1864-5 by the Rev. Samuel Haughton (1821-1897), a fellow of Trinity College, Dublin, and an all-round man of science, especially in mathematical physics, a medical man, professor of geology for 30 years, and a popular raconteur in Dublin society. In six short articles he dealt with the first six aphorisms and then the series ended, thus recalling the alphabetical *Medical Biography* (1834) which did not go further than the letter B by " that inimitable character " (Osler) James Atkinson (1759-1839) of York. Haughton, who later (1878-1896) represented the University of Dublin on the General Medical Council, began the series of articles with a life of Hippocrates and then suggested:

> Now that the Medical Council, after prolonged incubation, have hatched the *British Pharmacopoeia* we may hope that their attention will be turned to the knowledge of Greek possessed by the candidates for admission to the profession.

Of " the innumerable host of annotations " he remarked that " most of them have left the aphorisms more obscure than they had been without their aid." In connexion with the fourth aphorism " A scanty and rigidly prescribed dietary is always dangerous in chronic diseases, and in acute diseases where it is not suitable," his note runs " The late Dr. Graves wished it to be recorded of him that he fed fevers," but he does not " seem to have been aware that Hippocrates, 2,000 years before, had also fed fevers."

The *Regimen sanitatis salernitanum* or *Flos medicinae* is a collection of opinions or dicta on hygiene and treatment; but the date of its origin and its author or successive editors are uncertain. There is some reason to believe that it goes back at least to the twelfth century; for in some manuscripts it is dedicated, by Joannes de Mediolano (John of Milan), to " the King of England," probably Robert, Duke of Normandy (?1054-1134) who visited Salerno about 1100 for the cure of a fistulous wound received in the crusades, and was the eldest son of William the Conqueror. Other manuscripts, however, are dedicated to the " King of France." It has been ascribed to John of Milan, about whom little else is known, though he seems

to have been in a position of some distinction about 1100. The ancient manuscripts of the *Regimen* indicate that it was the collective product of the school of Salerno, but John of Milan may have been the chief editor. It was written in rhymed hexameters, and so would be easily committed to memory. Translations into English were made by Thomas Paynell (fl. 1528-1567), *the Regiment of Helthe* (1528); by Sir John Harington (1561-1612) who brought out a rhymed version, *The Englishman's doctor; or, the schoole of Salerne* (1607) anonymously at first, the publisher professing ignorance about the authorship and saying "it came to me by chance, as a jewelle that is found"; and by Philemon Holland (1552-1637), also in verse, which was printed in 1649, by "P. H. Dr. in Physicke, deceased." The bibliography of the *Regimen Sanitatis* was described by Moore and by Adami both in 1908.

Sanctorius Sanctorius (1561-1635), the father of experimental metabolism, was the author of *De statica medicina et de responsione ad statico-masticem. Aphorismoram sectionibus octo comprehensa,* 1614. These aphorisms were translated into English "with large explanations" by John Quincy (d. 1722) an apothecary in London and author of *Pharmacopoeia officinalis et extemporaria* which reached a twelfth edition in 1749. Sanctorius' 473 aphorisms are in the translation arranged in seven sections (i) insensible perspiration (111), (ii) air and water (61), (iii) meats and drinks (105), (iv) sleep and watching (70), (v) exercise and rest (36), (vi) venery (42), and (vii) affections of the mind (48). Sanctorius was not fortunate in his translator who in his preface stated that sometimes the reasoning in the aphorisms is obscure, and in reference to the comments made on Sanctorius' aphorisms by Martin Lister (1638-1712) in 1701 he remarked "I found my author more intelligible than his commentator." The translator's explanations vary in length and tone: after aphorism no. 19 in section vii:

> If anyone after immoderate joy perceives himself lighter, it does not chiefly arise from a total perspiration, but only from that of the heart and brain, where what is evacuated, is but little in bulk, but of great efficacy;

The explanation is brief: "this lies entirely beyond the reach of my understanding." Four explanations are so extensive, occupying

several pages, each, that they are called digressions. This translation reached a fifth edition in 1737. Among other works Sanctorius wrote *Commentaria in primam sectionem aphorismorum Hippocratis.*

Baldwin Hamey the younger (1600-1676) left a manuscript "Bustorum aliquot reliquiae," or short sketches of his contemporaries from 1628, which was a basis for part of Munk's *Roll of the Royal College of Physicians of London;* the following quoted from the copy in the College by Norman Moore, is fancifully attractive, but hardly an aphorism:

> Of William Harvey, the most fortunate anatomist, the blood ceased to move on the third day of the Ides of June in the year 1657, the continuous movement of which in all men, moreover, he had most truly asserted.

Although Sir Thomas Browne had a style of attractive quaintness and odd conceits, he was in some respects—the advocacy of cremation in his *Hydriotaphia, urne-buriall* (1658) and in the following anticipation of modern medical psychotherapy—far in advance of his time.

> Many dreams are made out by sagacious exposition, and from the signature of their subjects; carrying their interpretation in their fundamental sense and mystery of similitude, whereby he that understands upon what natural fundamental every notion dependeth, may, by symbolical adaptation hold a ready way to read the characters of Morpheus. (*On dreams*, first printed 1835).

The writings of Thomas Sydenham (1624-1689) contain many aphorisms, the best known being probably the following from the *Treatise on gout:*

> For humble individuals like myself, there is one poor comfort, which is this, viz. that gout, unlike any other disease, kills more rich men that poor, more wise men than simple. Great kings, emperors, generals, admirals, and philosophers, have all died of gout. Hereby Nature shows her impartiality; since those whom she favours in one way she afflicts in another—a mixture of good and evils pre-eminently adapted to our frail mortality.

That remarkable character Nicholas Culpeper (1616-1654) self-described as "Gent, student in astrology and physick" in his short life, before pulmonary tuberculosis carried him off, was a soldier wounded in the chest, a successful but irregular practitioner, a pro-

lific writer of popular medical publications leaving, according to his wife, 79 "books of his own making or translation" in her hands. The chief of these, his *Last Legacy* (1655) "never to be publisht till after his death" contained two series of a hundred items each entitled "rare and choyce aphorismes and receipts fitted to the understandings of the meanest capacities." These are almost all prescriptions, such as cures for the gout of which there are several; the nearest approach to an aphorism are

> to know a dropsie, whether hot or cold: you may easily know whether a dropsie be hot or cold, thus: if it begins below and swells upwards it is hot, because the nature of heat is to ascend; but if it swells downwards it is cold, because it is the nature of cold to descend.
>
> To know if a women be with child: if a woman desire to know whether she be with child or not, let her make water in a clean copper or brazen vessel at night when she goes to bed, and put a nettle into it; if the nettle have red spots in it the next morning, she is with child, else not.

Boerhaave and his Aphoristic Followers

The more modern revival of the cult of medical aphorisms was mainly stimulated by the *Aphorismi de cognoscendis et curandis morbis* (1709) of Hermann Boerhaave, the devoted disciple of Hippocrates and of Thomas Sydenham, the British Hippocrates, and has been termed the Batavian Hippocrates. He shared with Sydenham the personal affliction of "that *approbrium medicorum* called the gout," to quote the words in 1783 of the founder of the Jacksonian chair of natural experimental philosophy at Cambridge. Boerhaave's pupil Gerhard Van Swieten (1700-1772) was occupied for more than thirty years of his later life over his commentaries (1741-1774) on his master's concise aphorisms, and was called in 1745 to Vienna where he exerted a pioneer influence on clinical instruction in its medical school. The *Aphorismi de cognoscendis et curandis febribus* (1785) of his junior Maximilian Stoll (1742-1788) were translated into French by Jean Nicolas Corvisart des Marets (1755-1821) in 1797, and in 1801 by Paul Augustin Olivier Mahon (1752-1801), who should not be confused with Philipp Ambrose Marherr (1738-1771) of Prague, the author of *Praelectiones in Hermanni Boerhaave institutiones Medicas* (1772).

The edition in 1802 in Paris of Boerhaave's aphorisms was probably brought out by Corvisart for, though his name is not on the title-page, his initials J. N. C. appear at the end of the ***moniteur*** which precedes the work. J. O. de la Mettrie (1709-1761), also a pupil of Boerhaave, some of whose works and of Sydenham's he is said to have translated, began well. But after an illness when with the French army he deteriorated morally as well as physically, as shown by his writings, and was turned out of the French army, and later became physician to Frederic the Great. Here is an example of his style:

> Distrust your professional brother—***medicus medicum odit.*** "If you are in a fix lay the responsibility on the backs of the consultants."

The history of Corvisart's aphorisms is interesting because they were not published for more than a century after their collection and his death. His disciple F. V. Mérat (1780-1851), chef de clinique de la Faculté de Médecine de Paris, collected material in a manuscript entitled "Cours de clinique interne du Baron Corvisart, avec des aphorismes sur diverses maladies, recueillis aux leçons de ce Professeur," and wrote a note on its title-page to this effect: "this work should have been printed with the consent of Corvisart; but at this time his duties as chief physician to the Emperor Napoleon obliged him to discontinue his courses of instruction, and the work was not published." The manuscript was discovered in the Académie de Médecine of Paris, by the late Paul Busquet, who edited the third part, that on the aphorisms, and brought it out in a series of the unpublished works of the Masters of French medicine, with the title *Aphorismes de Médecine clinique par le Baron Corvisart recueillis par F. V. Mérat, publiés par le Docteur Paul Busquet bibliothécaire de l'Académie de Médecine* (1929). The 324 aphorisms were arranged in four main sections: (i) general principles (ii) acute diseases (iii) chronic diseases, much the longest, and (iv) death, necropsies, convalescence and drugs. Busquet's volume was in 1939 translated into English by A. L. McDonald who added a sketch of Corvisart. The 102 *Commentaries on the history and cure of disease* of William Heberden the elder were aphorisms in every respect except that of title. Von Soemmerring (1755-1830) the con-

temporary of Corvisart, in the preface to the Latin edition in 1805 at Frankfurt, of the *Commentaries*, described Heberden as "Medicus vere Hippocraticus," with whose aphorisms these *Commentaries* have been compared. They were made public in 1802 after his death and also translated by his son William Heberden the younger (1767-1845), and passed into a fourth edition in 1816. An important dictum is the definition of "digitorum nodi" commonly known as Heberden's nodes, which should not be confused with Haygarth's "nodes," a synonym for the nodosity of the joints, the name given to chronic rheumatic arthritis in 1805 by John Haygarth (1740-1827).

Digitorum Nodi. What are these little hard knobs, about the size of a small pea, which are frequently seen upon the fingers, particularly a little below the top, near the joint? They have no connection with the gout, being found in persons who never had it; they continue for life; and being hardly ever attended by pain, or disposed to become sores, are rather unsightly, than inconvenient, though they must be of some little hindrance to the free use of the fingers.

Another statement must be recognized even more strongly now, namely:

new medicines, and new methods of cure always work miracles for a while.

More Modern Medical Aphorisms

It might seem probable that the making of aphorisms, though not the search for the allied more intriguing titles for publications, would have diminished with the passing of the physician's gold-headed cane, the tall hat with the impacted wooden stethoscope in it, the frock coat, and other properties and characteristics of the actors on the medical stage. Pearsall Smith, though giving many exceptions, says that general aphoristic writings went out of fashion in the nineteenth century. Medical writing has increased enormously during the passage of years and possibly the relative incidence of aphoristic sayings has not kept pace; but absolutely, as may be seen in what follows, this is not obvious. Those who have reached the age when reminiscence is more habitual and attractive than the present and the prospect of a problematic future, may recall the story

of two old Oxford dons, whose following conversation was overheard as they slowly tottered round Christ Church walk together:

"Mr. Griffith, what a pity it is that there are no characters in Oxford nowadays; why when you and I were young, Oxford was full of strange and original characters; I wonder what can have become of them?" To which Griffith, the shrewder man of the two, replied, "Did it never occur to you, Dr. Frowd, that you and I may be the *characters* of the present day?"

It would be difficult and tedious to compile a complete list of the modern English-speaking aphoristic physicians and their sayings; but some personalities with a few examples of their "sentences" will be given. Among the consulting physicians in London during the last third of the last century Sir William Jenner (1815-1898), Sir Andrew Clark (1826-1893), and Sir William Gull (1816-1890) were prominent figures, and were supposed to have been irreverently described as respectively "a good physician but no humbug, no physician but a great humbug, and a great physician and a great humbug." All are credited with medical aphorisms, but more especially the last two. Andrew Clark, president of the Royal College of Physicians of London from 1888 until his death on November 6, 1893, wrote:

Health is that state of mind in which the body is not consciously present to us: the state in which work is easy and duty not too great a trial; the state in which it is a joy to see, to think, to feel, to be.

Dr. Arnold Chaplin who was closely associated with him in the preparation of the book *Fibroid Diseases of the lung* (1894) kindly supplied the exact wording of two examples of the oracular advice with which Clark impressed his patients:—

You must live under the laws of physiological righteousness; practise self-effacement, and skip backwards three times a day (To a neurotic girl).

Nature is inexorable; she never forgives and never forgets.

Some of Gull's impressive and pregnant sayings, found after his death on scraps of paper, were dutifully collected by his son-in-law T. D. Acland (1851-1931).

The greatest advance that can be made in practical science is to a full and intimate recognition of our ignorance.

Science and common sense differ as cultivated fruits differ from wild fruits. The law of health is the law of life. This is not a truism, but a law.

Oliver Wendell Holmes (1809-1894) practitioner but more prominent as professor of anatomy in Boston, Mass., was, like S. Weir Mitchell (1829-1914), pre-eminent among medical men who were also literary. In 1843 he anticipated by four years Semmelweis (1818-1865) in the campaign against puerperal infection, and was also a vigorous critic of homoeopathy and quackery.

So long as the body is affected through the mind, no audacious device, even of the most manifestly dishonest character, can fail of producing occasional good to those who yield it an implicit or even a partial faith.

Lawyers are the cleverest men, the ministers are the most learned, and the doctors are the most sensible.

In 1861 he referred to the advances due to the use of the microscope in what he spoke of as general anatomy:

It studies, not the organs as such, but the elements out of which the organs are constructed. It is the geology of the body, as that is the general anatomy of the earth.

W. H. Dickinson (1832-1913), a kind of medical Samuel Johnson, was an adept in trite sayings, though more often epigrammatic than aphoristic; thus he divided medical writers into two classes,

"those who thought they had something to say, and those who thought they had to say something." A shorter edition of this in an obituary notice of his friend Octavius Sturges (1838-1895) ran, "he wrote because he had something to say, not because he had to say something."

The following is a definition and may perhaps be classed as an epigrammatic aphorism:

esteemed as an excellent practical physician—perhaps partly because he acted on the precepts of the time without doubt and without stint.

In recent times the physicians of St. Bartholomew's Hospital have been active in the collection of medical aphorisms: In 1897 T. J. (now Lord) Horder, who was house physician to Samuel Jones Gee (1889-1911), collected 258 of his chief's aphorisms, later included in Gee's *Medical lectures and aphorisms* (1902) which reached a fourth edition in 1915 when Wickham Legg (1843-1921) added

" Recollections of Samuel Gee " and 14 more aphorisms; they were all Gee's aphorisms and attracted wide and well deserved admiration. Two years before his death in a letter he struck the sad note " it is useless to struggle against the infirmities of age. Only conceited braggarts pretend to do so " (O. Garrod). *Medical Notes* (1921) dedicated by Lord Horder " to the memory of my teacher Samuel Gee," was said to show " the same fastidious care in the use of terms and the elimination of the superfluous word." Sir Dyce Duckworth (1840-1928), remarking in 1916 that in the later years of his professional life " a thoughtful physician is apt to form for himself and gather from others certain opinions more or less dogmatic," felt it a " duty to posterity " to publish his collection of eighty aphorisms, 34 of which were quoted from others, and some of his own construction; he paid a tribute to his senior colleague Gee. In 1905, the year of his retirement from the active staff of the hospital 14 of his *obiter dicta* had been collected by S. B. Atkinson. Sir Norman Moore (1847-1922), president of the Royal College of Physicians of London (1918-1922) who played a prominent part in popularizing interest in the history of medicine, remarked:—

> In criticizing the ignorance of the dark ages or the middle ages, modern writers often forget how very ignorant we ourselves are, or how recent is our knowledge (1913).

His allusions and advice to students to read old books were often with persuasive intent accompanied by the addition:

> I do not want you to read these books because they are old but because they are good.

Walter Moxon (1836-1886) the brilliant Guy's physician and teacher, who committed suicide with hydrocyanic acid in the depression caused by his erroneous diagnosis which he recorded in writing his own death certificate " morbus renum," left a number of papers, some of which had appeared in the *Guy's Hospital Gazette* over the pseudonym *Pilocereus senilis*, all being printed in book form under that title in 1887.

> The great fallacy of the age is the vulgar fallacy that knowledge is power. But not all knowledge is power. Only the knowledge you have faith and aim

to use is power; and the instinct of each mind is, I believe, a far better judge of how much knowledge it has faith and aim to use than we commonly suppose.

Pathology is the noblest branch of medical science. It is noble enough not to fear the truth. And this is the truth, that it is not of much good for healing the sick; I mean, for the individual doctor healing the individual patient.

Sir William Osler (1849-1919), so aptly described as being to America what Boerhaave was to Europe (Sigerist), shared in the aphoristic touch.

A physician may possess the science of Harvey and the art of Sydenham, and yet there may be lacking in him those finer qualities of heart and head which count for so much in life.

There are only two sorts of doctors: those who practise with their brains, and those who practise with their tongues.

That most distressing of all human spectacles, those cold gradations of decay, in which a man takes nearly as long to die as he does to grow up, and lives a sort of death in life.

When you have made an observation of value or reached a conclusion concerning the unusual, publish it. Avoid carrying unpublished knowledge to the grave! The three great foes of the physician are ignorance which is sin; apathy, which is the world; and vice which is the devil.

The effective, moving, vitalizing work of the world is done between the ages of twenty-five and forty.

Sir James Kingston Fowler (1852-1934) in two of his books on tuberculosis appended, under the title *Obiter dicta* (incidental statements) a number of concise comments, such as:—

A working man has no time to be an early case of pulmonary tuberculosis.

A light occupation in the open air is seldom found.

A tuberculosis dispensary that has become a 'tuberculin' dispensary has become a very dangerous place.

In 1913 in a farewell lecture at the Middlesex hospital he told a story rather against himself, namely that personal experience in 1874 of acute tonsillitis followed after a month by rheumatic fever made him hope that this was an original observation, but he found that Trousseau (1801-1867) had described the "rheumatic sore

throat" in 1861. In 1880 Fowler published a paper on "the association between affections of the throat and acute rheumatism" with twenty cases. This episode gave birth in 1913 to the advice:—

If you want to be original you must not read too much.

According to Sir Robert Hutchison, president of the Royal College of Physicians of London since 1938:

Health, like happiness, is to be found, if at all, by the wayside, and the more you pursue it, the more it flees from you (1931).

Reflecting upon the sense of humor in Harvey it is permissible to regret that it is a quality not more abundant in scientific workers and writers. It would save us from much pedantry and dullness, from much solemn trifling calling itself research, and it would make scientific literature immeasurably more readable (Harveian Oration, 1931).

An active thyroid is believed to conduce to creative activity and to be the basis of what is called the "artistic" temperament, whilst pituitary activity and musical or mathematical ability are said to go together. Much of this, however, is highly speculative (1928).

J. A. Ryle, Regius professor of physic in the University of Cambridge writing on the sense of dying, the feeling of impending dissolution, or *angor animi*, says:—

Until this has been experienced it would seem that we can have no conception of its character . . . It has no kinship with pain or other familiar bodily discomfort. It differs from all ordinary forms of faintness. And yet it is more real and arresting and distressing to its victims than any of these. It is not mere anxiety or panic and, although it necessarily engenders apprehension, it is quite wrong to describe it as the *fear* of impending dissolution.

An Oxford teacher in 1938 borrowing the name of Peter Shaw (1694-1763), a court physician and extremely prolific writer, defined Medicine as:

Like agriculture or engineering, resting with shifting emphasis upon a tripod, the three limbs of which are a practical art, a theoretical science, and an applied science.

In connexion with panic and boredom on the home front Professor Major Greenwood in 1940 commented:—

All of us, even the oldest of us, know many things which are interesting, and some effort to interest bored young people is worth making, It may have a greater prophylactic value than we think.

Under the heading "Aphorisms and Memorabilia" Babey is publishing collected groups beginning with 64 pronouncements on the cardiovascular system mainly quite recent and some from living authorities communicated personally.

Surgical Aphorisms

More aphorisms and collections of them have been made by physicians than in other branches of the medical profession, but this does not mean that surgeons are devoid of the aphoristic habit. Hippocrates was described as "the first to give form and spirit to the practice of surgery" by Moynihan, who picturesquely described himself as "a physician doomed to the practice of surgery," and "whose genius has been curiously under-estimated by surgical colleagues who, whilst acclaiming what he did for the art of surgery, forget what he did for the science of medicine" (Hurst, Harveian Oration, 1937).

Lanfranchi (d. 1306), the "founder of French surgery" in his *Chirurgia magna* criticized the divorce of surgery from internal medicine:

> No man can be a good physician who has no knowledge of operative surgery, and a surgeon is nothing if ignorant of medicine; a knowledge of both branches is essential.

Allbutt in 1905 wrote:—

> To the student of Greek Medicine the separation in later times of surgery from medicine, which cut most deeply in Paris, seems as false in notion as in practice it has been pernicious. If the modern surgeon is vexed to hear that surgery is, as Galen declared, but a method of treatment, he is vexed by a truth which in the best interests of our profession he ought to welcome.

Harvey Cushing (1869-1939) taking Lanfranchi's statement as his text said that

> it did not imply that physicians must practice surgery—merely that they will be the better physicians, the better their understanding of surgical therapeutics; and, on the other hand, that no surgeon should be regarded as

qualified to undertake operative procedures who is not primarily and thoroughly grounded in medical diagnosis.

But in the last century surgeons in London had modestly, if not seriously, defined themselves as "physicians who can use their hands" and as "physicians and something more." John Hunter (1728-1793), the founder of scientific surgery, wrote

> The last part of surgery namely operations, is a reflection on the healing art; it is like an armed savage who attempts to get that by force which a civilized man would get by stratagem.

St. Bartholomew's hospital in the past was known for the "Bartholomew's method" of speaking, namely that the teachers learnt their lectures and addresses completely by heart. Sir James Paget (1814-1899) carried on the tradition of surgical oratory, from Sir William Lawrence (1783-1867), and was followed by Sir William Savory (1826-1895), and Sir Henry Butlin (1845-1912). The talent of oratory may, though not necessarily, be combined with the aphoristic method of expression; but it certainly was so in that "very wise surgeon" Paget. In his Hunterian Oration (1877) the blue ribbon of the Royal College of Surgeons of England and thus corresponding to the Harveian Oration at the sister College of Physicians, which W. E. Gladstone described as having divided mankind into two sets, "the happy minority who heard it, and the to-be-pitied majority who had not the good fortune," Paget said:

> We still have our distinctions of practical and scientific surgery, of the art and the science. And though the differences between them diminish every year, yet they will remain; and it is well they should do so, for they are suited to men of different tempers, tastes, or opportunities.

From his presidential address to the International Congress in London 1881, the following quotation may be given:

> There is no course of nature more certain than is the upward progress of science. We may seem to move in circles, but they are the circles of a constantly ascending spiral; we may seem to sway from side to side, but it is only as on a steep ascent which must be climbed in zigzag.

The following is from his own memoirs (1885):

It is very difficult for an old man—say for one who is 70, and not unhealthy—to observe all the changes which in the passing years are in progress in him.

The veteran, W. W. Keen (1837-1932) of North America wrote:

The savant in the laboratory and the clinician in the hospital have been wedded at the bedside in the bonds of a scientific friendship, never before so welcome and now is so fruitful for the good of mankind. (1920).

A single standard of sexual morality is the only righteous and just standard. It should be just as disgraceful in the judgment of the men and women in the community for a man to have a mistress as for a woman to have a privileged lover. Social ostracism now visited only upon the woman should be meted out equally to the man.

Sir Rickman John Godlee (1849-1925), president of the Royal College of Surgeons (1911-1913) and of the Royal Society of Medicine (1916-1918), in the Life of Joseph (Lord) Lister (1827-1912) his uncle, referred to men approaching middle age on the staffs of London hospitals as

better judges of new ideas than ardent juniors to whom every novelty is a portent, or grave seniors who view each innovation with suspicion.

John Bland-Sutton (1855-1936), like his hero John Hunter, a naturalist surgeon, generously acted up to his dictum that

in pre-Listerian days the path to surgery lay through the dissecting room. Today it lies through the pathological institute.

Surgeons are of two types, either craftsmen or biologists; the surgical craftsman invents variations in technique. . . . The biological surgeon studies pathology in its broadest aspects in the laboratory.

If I could believe that the soul of man survives the dissolution of his body, I would believe the spirit of John Hunter haunts the galleries of this wonderful museum; but I do believe his influence is a quickening spirit among surgeons today.

When our friends are alive we hesitate to say much about them in their presence, except in after-dinner speeches. As soon as they are dead we are apt in a paroxysm of sympathy to over-praise their work.

Stephen Paget (1855-1926), the fourth son of Sir James, was also a surgeon, but better known as a charming writer. In *Confessio Medici* (1908) he said

If a doctor's life may not be a divine vocation, then no life is a vocation, and nothing is divine.

Patrick George Andrew Berkeley (Lord) Moynihan (1865-1936) had a graphic and aphoristic style, a few examples of which, including two from his Linnacre lecture in 1936 at Cambridge, *The Truants,* a title used by A. E. W. Mason in 1904 in a different connexion, may be quoted:—

Now of operators there are many types and, like many other works of art, an operation is the expression of a man's temperament and character.

To the old question, "is Medicine science or art?" the answer surely will soon be, it is both: Science in its methods and inquiries: in its practice Art (1932).

It has always been one of the salient characteristics of medical men in all countries and at all times that they have ardently followed other pursuits than that of their own profession. (1936).

Most cruel of all tyrannies surely are those exercised over the minds of man, denying them both freedom and expression (1936).

Harvey Cushing, who carried on the Osler tradition, also left wise sayings:

In these days when science is clearly in the saddle and when our knowledge of disease is consequently advancing at a breathless pace, we are apt to forget that not all can ride and that he also serves who waits and who applies what the horseman discovers.

It is a curious anomaly that the British surgeon, taken as a whole, is probably in practical ways a better trained doctor than is the American surgeon, and yet he rarely possesses a full medical degree, and is apt to pride himself on not being called "doctor." Here (North America), on the contrary, the surgeon, though graduated a doctor of medicine, not infrequently lapses into a state of being little more than a craftsman who, except for the external parts of the body, makes little or no pretence at diagnosis.

The late Wilfred Trotter, great surgeon and philosopher, in a posthumously published paper on panic and its consequences said in reference to the total black-out that:—

Its consequences may well become a classical example of the staggering paradoxes that result from mixing good intentions with panic.

It recalls some sayings of Mandell Creighton (1843-1901) bishop of London:

Paradoxes are useful to attract attention to ideas.

No people do so much harm as those who go about doing good.

It is wonderful how little mischief we can do with all our trouble.

In the 58th of his 87 surgical aphorisms Keynes mentioned that

in the days when empyema of the thorax provided a surgical holiday for physicians, chronic empyema sinus was a commonplace and the after-results have provided some pretty problems for surgeons.

Aphorisms by Specialists

There is one kind of specialism which to some men is ruinous, and is mischievous to all; namely, to cultivate apart either intellect or imagination. Specialize each as you please, but do not sunder them, nor neglect either of them (Allbutt, 1906).

Harvey Cushing concluded that:

The present trends affecting the physician and surgeon are, on the one hand, toward preventive medicine and good nursing, which lessens the importance of therapeutics; on the other, in surgery, an ever-increasing subdivision and specialization which tends to magnify the importance of mere handicraft. Prevention, it is true, can also be applied in surgery.

Obstetrical aphorisms were much employed by Sir Richard Manningham (1690-1759) the leading man-midwife of his day, who published them in 1740 and again in 1758. The *Aphorisms in the application and use of the forceps and Vectis in preternatural labour* (1783) of Thomas Denman, the elder (1733-1815), also a leader in this branch of practice in London, was the most popular of his works.

The branch of Public Health was specially considered in the *Regimen sanitatis saleritanum* in the distant past (see p. 550).

Sir George Newman whose advocacy of preventive medicine has been untiring points out that:

Altruism and kindliness of man to man, combined with foresight, true economy and common sense, are among the forces which can most wisely apply the verities of the science and art of preventive medicine to the needs of men.

Recently J. R. Kaye made a collection of proverbs on personal and public health.

The aphorisms of S. Ramón y Cajal (1852-1934), the neuro-histologist, were translated by F. H. Garrison, and together with 46 taken from Ramón y Cajal's Charlas de Café, making 116 in all, were published in 1929.

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FUNDAMENTAL ERRORS IN THE EARLY HISTORY OF CINCHONA *

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§ 4. The Fabulous Story of the Countess of Chinchon

No story in medical history has captured the imagination more completely than the romantic account of the cure of the Countess of Chinchon of malaria by the use of Cinchona Bark, during the time that her husband was Viceroy of Peru—from 1628-1639. For centuries it has been inseparably associated with the discovery of the febrifuge Cinchona, so named after its heroine by Linnaeus.

The story was first recorded in 1663 by Sebastiano Bado [72] who says that he derived his information from a letter written by an Italian named Antonius Bollus, a merchant who lived many years in Peru. So far as is known, neither the original nor any record of it, other than that given by Bado, is known to exist.[73] Unfortunately he does not give the letter *verbatim* and admits that " the order has been changed, and certain things which belong to knowledge or learning inserted." The extent of Bado's responsibility is therefore uncertain.

Bado's account is as follows:—

> In the city of Lima, which is the capital of Peru, the wife of the Viceroy, at that time the Count of Cinchon (those who say it was the Marquis of Mancera are mistaken) fell sick. Her illness was the tertian fever, which in that part is by no means mild but severe and dangerous. The rumour of this illness (as generally happens to important people) which at once became known throughout the city spread to the neighbouring places and reached Loxa. Thirty or forty years have passed I think from that time until now (1663).
>
> A Spaniard, who then held the governorship in that place, was informed

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* See this *Bulletin*, 1941, Vol. X, pp. 417-459.

[72] Bado, S., *Anastasis Corticis Peruviae seu Chinae Chinae defensio S. B.* . . . Genoa 1663. P. 22.

[73] Ray in his *Historia Plantarum*, Vol. 3, London 1686-1704, seems to be wrong in stating that Bollus " published a history of the tree (Cinchona) written in Italian."

about the illness of the Countess, and decided to advise her husband the Viceroy by letter. He did so and wrote that he possessed a certain remedy, which he unreservedly recommended, and if the Viceroy would use it, his wife would recover and be freed from all fever. The husband told his wife about this communication, and she immediately agreed. Then, since we readily trust that which we hope will profit us, the Viceroy ordered the man from whom he hoped for help to be summoned without delay, and he was therefore ordered to come to Lima at once, which he did. When admitted into the presence of the Viceroy he confirmed verbally what he had said in the letter, and told the Vicereine to be cheerful and confident, since he was certain she would recover, if she would stand by his advice. Having heard this she decided to take the remedy, and after taking it, to the amazement of all, she recovered sooner than you can say it.

When this was learnt in the City, the people approached the Vicereine by intermediaries, not so much joyfully and congratulatorily, but supplicatingly, begging her to deign to help them, and say, if she would, by what remedy she had at last so marvellously, so quickly, recovered, so that they, who often suffered from precisely this fever could also provide for themselves.

The Countess at once agreed. She not only told them what the remedy was, but ordered a large quantity of it to be sent to her, to relieve the sufferings of the citizens, who often suffered from the fever. Nor did she only order this great remedy the Bark to be brought, but she wished to dispense it to the many sick with her own hands. And the thing turned out so well that, just as she herself had experienced the generous hands of God in that miraculous remedy, so all the needy who took it marvellously recovered their health. And this bark was afterwards called *Countess's Powder*, which in Spanish is *los polvos de la Condeça.*[74]

The story of the cure of the countess, thus related by Bado has become absorbed, almost irrevocably it seems, into the history of Cinchona. Yet the most striking fact that confronts the modern investigator is that not a single contemporary writer other than Bado, not one of the numerous historians of the New World, makes the slightest mention of the event. Although Bernabe Cobo and Antonio de la Calancha (see pp. 429, 440 *supra*), both of whom lived in Peru at the time, described the remedy, and Cobo states that it was already well known in Europe, yet neither of them makes any reference whatever to the cure of the Countess of Chinchon nor any mention of the Governor of Loxa.

The truth of the story has, it appears, never been challenged,

[74] For original text *vide* Appendix (i).

although Humboldt regarded it as a fable without stating any grounds for his conclusion. Joseph de Jussieu's statement that a Jesuit at Malacatos was the first European to be cured of fever by the use of " Quinquina " in the year 1600,[75] is unsubstantiated. La Condamine who relates the story of the Countess of Chinchon from Bado also says that he found in a convent library at Loxa a manuscript in which it was stated that the remedy " Quinquina " was in use amongst the Europeans of Lima about the same date, 1600.[76] Both these authorities regarded " Quinquina " as always indicating Cinchona. In view of the proof already given that the " Quina Quina " described by Espinosa (before 1628) and Cobo (*circa* 1630) was not Cinchona but Myroxylon, and that the latter was then used as a febrifuge, the assertions of the French savants cannot be accepted without suspicion that they had mistaken references to Myroxylon for facts relating to Cinchona.

Before examining the truth of the story of the cure of the Countess of Chinchon, the question of the actual identity of this lady needs to be settled; for owing mainly to the elaborate Memoir on the family of Chinchon written by Sir Clements Markham,[77] a great deal of error still persists. The heroine of the story is identified by Markham as Ana de Osorio, daughter of the Marquis of Astorga, who married the Count of Cinchon on 11 August 1621.

Markham briefly outlined the story related by Bado, except that without any evidence he definitely dated the cure of the Countess as 1638 [78] in spite of Bado's reckoning that it took place between 1623 and 1633.

It is unfortunate that the English cinchonologist should have failed to discover that Ana de Osorio, Countess of Chinchon, died on the day of the Conception of Our Lord 1625,[79] three years before the appointment of her husband as Viceroy of Peru on 18 February

[75] Weddell, H. A., *Histoire naturelle des Quinquinas. . . .* Paris. 1849. P. 15—quoting from J. de Jussieu's unpublished manuscript.

[76] La Condamine, C. M. de, *Sur l'Arbre du Quinquina—vide* Mémoires de l'Académie Royale des Sciences 1738; Paris, 1740.

[77] Markham, Sir Clements R., *A Memoir of the Lady Ana de Osorio, Countess of Chinchon. . . .* London, 1874.

[78] Markham, Sir C. R., *op. cit.*, p. 41.

[79] *Municipal Archives of Chinchon*, File 4.

Don Luis Geronimo Fernandez de Cabrera y Bobadilla,
FOURTH COUNT OF CHINCHON.
Viceroy of Peru from 1628 to 1639.

1628.[80] It was his second wife Francisca Henriquez de Ribera whom he married in the early part of 1628 (in February [81]) who accompanied him to Peru in the same year as Vicereine. In the Archivo Generale de Indias, at Seville, there exists the Royal authority, dated from Madrid, 18 February 1628, to the House of Trade at Seville to pass for Peru the Countess Doña Francisca Henriquez de Ribera, wife of the new Viceroy.[82]

It is unnecessary to delve into the mass of inconsistencies of the historians of the eighteenth and nineteenth centuries concerning the story of the Countess's cure, in consequence of the discovery in 1930, by Miss I. A. Wright on behalf of the late Sir Henry Wellcome, of the official Diary of the Count of Chinchon relating to his term of office as Viceroy of Peru.[83]

The diary, kept in meticulous detail by his secretary Dr. Don Antonio Suardo, has been most carefully examined for the purpose of this investigation. In sending home to Spain the first instalment of the diary the Count observes that it is " so long and prolix that it will be hard to read." It is crowded with events great and small and pays particular attention to the deaths of prominent persons, and to the illnesses not only of the Viceroy, his family and his staff, but of any citizen of prominence.

It is also unnecessary here to review all the innumerable entries concerning the public and personal activities of the Count and his Countess, as well as other notabilities, which provide a striking panorama of pageantry, interwoven with the routine of daily life. Banquets, Bull fights, Processions, and Celebrations, Religious Festivals, University Assemblies and Orations are intermingled with records of the maladies which befell Courtier and citizen alike.

In this intimate record of the lives of the Count and Countess of Chinchon, one may search in vain for any account of the Countess

[80] Seville, *Archivo Generale de Indias*, 139-6-8. *Indiferente General* 512, vol. 1, fol. 72 ff.

[81] *Municipal Archives of Chinchon.* File 5 says, " The Council was called on February 9th 1628 and it was resolved to present congratulations to the Count on the event of his new marriage."

[82] Seville, *Arch. Gen. de Ind., loc. cit.*, fol. 85.

[83] Seville, *Arch. Gen. de Ind.*, 70-2-6 Lima 45. (Photostat copy in possession of the *Wellcome Historical Medical Museum*, London.)

ever having suffered from fever, but so far as the Count is concerned the diary seems to be one continuous history of his malarial attacks.

During the whole of the eleven years covered by the diary two entries only refer to the Countess having been unwell. On the 26th November 1630, " The Vicereine awoke ill in that her throat was inflamed. The doctors ordered her bled twice. Wherefore his excellency ordered to be suspended " a very elaborate festival planned by the Silversmith's Guild. The next day (27th) " The Countess being better " preparations for the festival were continued, but were again suspended on account of a severe earthquake. The next occasion was on 31st October 1636, when both " The Viceroy and the Vicereine were bled because they were ill with flux and cough on the lungs." But they were at Mass the next day.

Neither of these two disorders could possibly be connected with an attack of Malaria, nor have been the basis of the story associated with the discovery of Cinchona. All through the diary the Countess, save for the two slight ailments referred to, is leading the vigorous, active life of a healthy woman, who owing to the constant indisposition of her husband is called upon to undertake frequent public duties, and participate in numerous functions. She drives out to see processions, entertains officials at the palace, visits religious institutions, watches the games, visits the fleet at Callao, attends banquets (of one of these the 64 courses are recorded) and a vast number of other social activities.

Of the Count, the diary tells a different story. An original letter dated 25th March 1629 from the Count to the Crown authorities in Madrid announces that he landed at Callao (the port of Lima) on December 18th 1628, and made his entry into la Ciudad de los Reyes (Lima) in state on 14th January 1629, where he was received as Viceroy.[84]

The Countess having travelled overland on account of her condition, stayed at Lambayaque where her son was born, and did not reach Lima until the night of April 19th 1629.[85]

The Diary begins on 15th May 1629 and a summary of the extracts relating to the illnesses of the Viceregal family is as follows:

[84] Seville. *Arch. Gen. de Ind.*, 70-2-3; Lima 42.
[85] Zegarra, C. C., *Revista Peruana.* Lima, 1879.

1629-30

February 5. His excellency is much troubled with *mal de hijada* (pain in the side) and on the 6th was bled, which relieved him.

February 10. The Viceroy being still much annoyed by his illness, and others which followed developing from it, he summoned a consultation of doctors, and it was decided he should be bled again. This was done, whereupon Our Lord was pleased that improvement should follow.

1630

July 2. The Viceroy felt ill . . .

July 3. His Excellency was worse and in pain—the doctors ordered him bled.

July 5. The doctors ordered the Viceroy bled again—he improved.

July 12. By order of the doctors, His Excellency took a purge and was quite well whereat all the city rejoiced greatly.

November 4. His Excellency passed a bad night, with pain in his side *(dolor de hijada)* which was severe; but God was pleased there should be no further development . . .

November 26. The Vicereine awoke ill in that her throat was inflamed. The doctors ordered her bled twice. Wherefore His Excellency ordered suspended (an elaborate festival planned by the Silversmiths' Guild).

November 27. The Countess being better (preparation for the festival continued).

December 6. (The Countess is a prominent and gracious figure at the Silversmiths' festival and bull fight).

December 12. His Excellency felt ill of wind (of the bowels) and remained in bed, but God granted that he was better shortly.

1630-31

February 15. His Excellency the Count being somewhat indisposed *with a slight fever,* the doctors ordered him to bed.

February 17. His Excellency was still unwell and the doctors ordered him bled again. (He felt better).

March 12. His Excellency felt ill and therefore the doctors ordered him bled; (Improvement followed).

1631

April 29. His Excellency *being worse of an intermittent fever* the doctors ordered him bled in the afternoon. Nevertheless he passed a bad night . . .

May 1. His Excellency was ill and could not sign dispatches.

May 5. The doctors found that *the intermittent fevers with which His Excellency is suffering were increasing.* This caused great anxiety and grief. It was ordered that a consultation of four doctors be held twice daily,

and that the *proto medico* Dr. Melchos de Amusgo, who is ill in his house, be kept informed.

May 6. (Prayers offered in every Monastery and Nunnery in the City).

May 7. His Excellency felt *worn out by chills and fevers* and, as became so Christian a prince, desired to make ready in time, and so at five a. m. confessed and received the Host from P. Diego de Torres of the Jesuit Order, and having rested a little before he ate, summoned the Countess and delivered to her a little coffer, with pearls and jewels and his will therein sealed, and commended his son to her in words so tender they melted not only the Countess, but also all who stood by, into tears . . .

May 9. Our Lord granted that the Physicians should find a very notable improvement in His Excellency's illness and that in this day the usual rise in temperature, which was feared, did not occur, which occassioned particular pleasure and happiness in all the Court.

(On May 13 the Count is able to attend to business, and on May 18th he is out).

May 25. His Excellency *was ill with an attack of chills and fever* therefore the doctors ordered him bled.

May 29. His Excellency—*indisposed.*

June 5. This day his Excellency was indisposed for in the afternoon *the fever returned which is becoming quartan.*

June 7. His Excellency—too ill— (to make inspection of jails).

June 16. His Excellency *awoke with fever*— (but out again on the 19th).

September 27. His Excellency felt suddenly ill—(out on 29th).

October 29. Feeling somewhat ill—(out on November 2nd).

1632

May 11. His Excellency *awoke with a fever.*

May 16. His Excellency *awoke quite ill of intermittent fever.*

May 19. —free of his fevers, whereat all the Court is very pleased and glad.

May 29. The Count is still convalescent and thin—

August 17. His Excellency feeling indisposed was bled.

October 6. His Excellency bled because he had passed an uneasy night.

October 8. —bled a second time.

1632-33

February 9. His Excellency —*awoke with chills and fever.*

February 18. —still indisposed—bled again.

February 22. The doctors ordered His Excellency to take a purgative to finish expelling the Evil humours which keep His Excellency indisposed.

1633

May 27. His Excellency indisposed, his leg hurt in a fall.

All along there is frequent mention of the religious and social activities of the Countess, showing that she enjoyed good health.

July 29. His Excellency was ill with pain in the stomach. Fearing it arose from superabundance of Blood (!!) the doctors ordered him bled.

July 30. The doctors ordered the Count Viceroy bled again.

August 1. His doctors ordered a purge.

September 1. —his throat badly inflamed, in consequence of too much blood . . . bled twice in two hours.

September 6. The Viceroy named Dr. Juan de Vega, His Excellency's personal physician, *proto medico* of this realm.

1633-34

January 24. The Viceroy being *ill of fever,* which *appeared to be intermittent* (tertian), the doctors ordered him bled.

January 26. The doctors ordered the Count Viceroy bled again. In the afternoon *his fever rose* and he had a somewhat violent chill, which caused worry in all the Court.

January 31. —left his bed, *the fever* having left him.

At this point there is a marginal note which says ". . . apparently it is not of such small details nor matters of this quality that His Majesty (of Spain) has ordered the Viceroys and Governors to furnish account . . .".

But the Diary continues in the same meticulous manner:—

1634

July 11. His Excellency having had a headache (since the 7th) . . . his doctors ordered him to bed.

Throughout 1634 and 1635 the Countess is apparently well, spending days in the country, attending Comedies, giving Banquets, visiting the Fleet at Callao, watching processions from the Palace balcony, entertaining, etc. A marginal note suggests that the Diary was ordered to be discontinued by the Authorities in Spain. It was, however, continued.

1635

October 25. The Viceroy was ill—the doctors ordering him bled, and the next day a tooth was extracted.

November 22. Viceroy much troubled by toothache, the doctors ordered him bled.

December 24. Viceroy—somewhat indisposed.

December 26. Viceroy ordered to take a purge because he found it difficult to move his feet and hands and there was some fear of gout.

1635-6

January 1. Viceroy still ill. and in bed.

January 7. —Viceroy—still indisposed.

March 24. Viceroy awoke with his throat infected, and the doctors ordered him bled at once.

March 25. —the Viceroy was still suffering from the said attack—bled the second time.

1636

April 18. Don Francisco, the *Viceroy's only son was very ill of a fever* and occasioned His Excellency and all the Court alarm.

April 19. His Excellency called to consultation the best doctors in the City and it was decided to bleed the patient, whereupon he improved. On the 22nd he was bled again.

June 5. Viceroy ill with pain in the stomach and remained in bed.

On June 8th the Count and Countess received congratulations that their son, Don Francisco, has been created Marqués de San Martín de la Vega. In accordance with vows they had made the Count and Countess went to the Franciscan Monastery on July 7, to the Church of Our Lady of the Rosary on July 8, to the Church of St. Augustine on July 9, and to other Churches on July 10, 11, and 12, at all of which votive masses were said in gratitude for the recovery of their son. The diary continues:—

1636

October 13. His Excellency was indisposed with headache and *an attack of fever.*

October 31. The Viceroy and the Vicereine were bled because they were ill with flux and cough on the lungs. (Well the next day).

1636-37

January 27. His Excellency ill with gout.

1637

April 28. His excellency *awoke with fever.* A consultation of doctors . . . ordered him to be bled.

April 29. —bled a second time because *the fever was pronounced to be tertian.*

May 15. Viceroy suffered an attack of gout.

May 17. His Excellency bled again . . . to lessen the severity of the pain of the gout. (Better on the 20th).

September 1. His Excellency fell ill with an attack of "sores in the throat" which made it necessary to bled him several times hastily . . .

1638

June 2. His Excellency was to have gone to the Cathedral on the eve of Corpus Christi but did not go as he felt ill.

June 3. His Excellency went to the celebration of the festival . . . on Corpus Christi, and after he had accompanied the procession through the usual street . . . where the play is presented, he returned to the Palace, *for he had fever* (on the 13th he was well and out).

October 21. His Excellency fell ill . . . he had *developed fever,* whereof he was bled twice.

October 23. He was worse. A consultation of the doctors of this city was held, for the disease was pronounced enteric . . . and with it continuous fever.

October 28. . . . His Excellency no better (the Countess ordering many masses for the Viceroy's health, and distributing candles and alms).

November 8. . . . somewhat better, and from this day he steadily improved, having in his illness been in great danger of death.

Throughout 1637 and 1638 the Countess and her son continue to figure prominently in social activities with a frequency that indicates good health. The diary is conspicuous for the care with which it records every occurrence of ill-health in the Viceregal family, however small. There is not the slightest suggestion that the Countess of Chinchon, heroine of the story with which Bollus and Bado illuminated the discovery of Cinchona, ever suffered from malaria on any occasion. It is inconceivable that in a diary of this character, in which the activities of the Viceregal famly were of first importance, there should pass unnoticed such events of official and public interest as :—

(a) A serious illness of the Countess with malarial fever.

(b) The discovery of an effective remedy against a disease that was defying all the skill of the medical profession and was rife throughout the civilized world.

(c) The public distribution of such a remedy by the gracious lady herself, gratis, to the poor of the city of Lima.

Yet the story related by Bado and his followers would have us believe that the Countess was stricken almost unto death by a fever so virulent that the Court Physicians were powerless to alleviate her suffering. La Condamine, who draws many of his facts from Bado and bases others upon information gleaned during his expedition to Peru, goes so far as to say that the remedy gained notoriety on " the occasion of a stubborn tertian fever from which the Countess of Chinchon, Vicereine of Peru, could not for many months be cured."[86] We have seen recorded in the diary that when both the Count and his son were victims of malaria not only is the fact noted, but also the treatment by phlebotomy performed by the physicians, several times on occasions, and when the attack was severe, that prayers were offered in the churches. Such an event as La Condamine describes, had it happened to the Countess, could therefore hardly have escaped the inquisitive mind of Dr. Don Antonio Suardo, the Count's diarist. Nor could such news as the discovery of so " miraculous " a remedy have passed unrecorded by Suardo, whose ear for gossip was so conspicuously receptive that the story was far more likely to have found its way into his pages if untrue, than to have been omitted if it were a fact. Even the Viceroy himself writes that he does not guarantee the complete accuracy of the diary because the author has gone into such detail and obtained information from so many different sources.[87]

Nor, had the Countess distributed the remedy to the poor from the Jesuit College of St. Paul,[88] or caused such to have been done, would Suardo have omitted to mention the fact, for he seems to have been particularly fond of recording official visits to religious houses, no doubt on account of his being a cleric himself.

One is, therefore, forced to the conclusion that, notwithstanding the prominent place it has held in the history of medicine, the story of the cure of the Countess of Chinchon as told by Bado and his imitators has no foundation whatever in fact.

The Viceroy's diary ended on May 30th 1639, but in the meantime the Count of Chinchon had, by a dispatch [89] dated 15th April 1638

[86] La Condamine, C. M. de, *op. cit.*
[87] Seville, *Arch. Gen. de Ind. Indiferente General.* 512: 11.
[88] *Catholic Encyclopedia.* New York, 1910. Vol. 8, p. 373.
[89] Seville, *Arch Gen. de Ind. Indiferente General.* 512: 11.

from Madrid, been granted leave to return to Spain. He was appointed to rank as Captain-General of the Armada by which he sailed, and "because it is proper that he be respected in conformity with the offices in which he has served me (the King)" he was appointed also to preside over the *Audiencia* of Panama whilst waiting there for the departure of the fleet.

Chinchon's successor, the Marquis of Mancera, did not, however, arrive at Callao until 25th November 1639. On December 18th following he entered Lima in state and assumed office;[90] presumably the Count of Chinchon and his family then left for Spain.

Inseparably linked with the story of the cure of the Countess of Chinchon are certain other "facts" which have passed into the history of Cinchona:—

1. That the Countess returned with her husband to Spain and there distributed the remedy amongst the vassals of the Chinchon estate.
2. That she also sent a quantity of the bark to the University of Alcala de Henares, where in 1639 it was used in the treatment of Dr. Michael de Barreda, Professor of Theology.
3. That her physician Dr. Juan de Vega also returned to Spain with a consignment of the bark which he sold at Seville at the price of 100 Reales for a pound.

All these statements which are still unquestionably accepted by historians of Cinchona can now be unequivocally disproved.

Regarding the return of the Countess of Chinchon to Spain, Bado makes no mention of this fact, but Markham in the work already referred to declares that on her arrival she "administered Peruvian bark to the sufferers from tertian agues on her lord's estates, in the fertile but unhealthy *vegas* of the Tagus, the Jarama and the Tajuna. She thus spread blessings around her, and her good deeds are even now remembered by the people of Chinchon and Colmenar in local traditions."[91]

[90] Seville, *Arch. Gen. de Ind.*, 70-2-11, Lima 50. Original letter from Mancera to the Crown dated 29th May, 1640.

[91] Markham, C. R., *op. cit.*, pp. 45, 62, 71. The author claims to have received this "information from Don Hippolito Serrano, Regidor of Chinchon."

How utterly unfounded is this sentimental story may be seen from the fact that the Countess of Chinchon, wife of the Viceroy of Peru, never returned to Spain at all—*on the journey home she died and was buried at Carthagena, Colombia, on the 14th January 1641.* There are two reliable authorities for this information.

In the *Archivo Generale de Indias* is a dispatch addressed to the Crown dated 28th February 1641 from Gomez de Sandoval, commander of the fleet which brought home the Count of Chinchon. It says:—

> I arrived at Carthagena on my return (from Puerto Belo) on January 13 with the greater part of my people sick, and here (Carthagena) and at Puerto Belo a lot of people died . . . and the day after having arrived at Carthagena the Condesa de Chinchon died.[92]

The circumstances suggest an epidemic of which the Countess may have been a victim.

Confirmatory evidence is forthcoming. In the Archives of the Order of Franciscan Friars at Lima (Reg. 4, No. 2, doc. No. 29) is an edict issued on 15th May 1641 by Alsono Manrique, Provincial of the Order from which the following is an extract:—

> By these presents let it be known unto you how, on the 14th January of this year 1641, in the City of Carthagena of the Continent of this Kingdom, Our Lord gathered unto Himself, Donna Francisca Henriquez de Ribera, Countess of Chinchon, and a Patroness of our Holy religion.[93]

The Count sailed with Gomez de Sandoval aboard the Vice-admiral as the flagship leaked, arriving in the bay of Cadiz on 30th June 1641.[94] Therefore, if the bark was brought to Spain and distributed among the Chinchon vassals it certainly was not the Countess who did so. It is just possible that these things may have been done by the Count, but if so it clearly was later than June 1641.

This last mentioned date at once answers the second problem. If, as Bado quotes Dr. Villarobel as having said, it was in 1639 that Dr. Michael de Barreda was cured of fever with Cinchona, it was not

[92] Seville, *Arch. Gen. de Ind.*, 141-1-18. *Indiferente General* 762.
[93] Zegarra, C. C., in *Revista Peruana*, Lima 1879.
[94] *Arch. Gen. de Ind.*, 141-1-18. *Indiferente General* 762. Dispatch from the Council for Indies to His Majesty dated 3rd July, 1641.

with bark brought to Spain by the Count of Chinchon who did not arrive until two years later. Neither was it the Countess who brought home the bark and sent some to the University of Alcala de Henares as Markham contends.

As for the third point that the Viceregal physician, Dr. Juan de Vega, also came home to Spain with large quantities of the bark and " was selling it in Seville at one hundred reales a pound,"[95] the falsity of this story is evident from the fact that there is ample proof that Juan de Vega never returned to Spain, but remained in occupation of his Chair as Professor of Medicine in the University of Lima.

In the *Archivo Generale de Indias* at Seville is a collection of documents relating to Lima University from 1571-1699. De Vega must have remained in Peru, for his signature is continually appearing on documents after the departure of his patron the Viceroy. In 1650 he is still signing [96]—by this time his signature is feeble—although this seems to be the last occasion on which he did so.

The evidence now furnished strongly suggests, (1) that the story of the Cure of the Countess is a fable, and proves (2) that she never introduced the remedy to Europe because she died before she left the New World. (3) It also proves that the Viceregal physician Dr. Juan de Vega did not return to Spain, and consequently neither brought a consignment of the bark nor sold it in Seville. Who then first introduced Cinchona into Europe?

In regard to this point, the early authorities are the source of much confusion. For the most part their information is of " hear-say " character seldom supported by evidence. Although we are still unable to furnish an absolute solution of the mystery, it is possible to clarify the problem by the elimination of a great deal of fiction that has clouded the issue for centuries. Chifflet [97] in 1653 and Sturm [98] in 1656, both writing before Bado (1663) mention nothing of the story of the Chinchons, but assert that the bark was first introduced into Belgium by the Jesuits. Unfortunately they do not say when it first

[95] La Condamine, C. M. de, *op. cit.*

[96] *Arch. Gen. de Ind.*, 71-4-8, Lima 337. Dispatch from University to the Crown in 1650.

[97] Chifflet, *op. cit.*

[98] Sturm, R., *op. cit.*

arrived, but Chifflet says it came direct from Peru, brought by Michael Belga. Neither does Brunacio [99] in 1661 speak of the Viceroy or his wife, but says that the bark " was first brought from the kingdom of Peru to Rome in the year 1650 by the Fathers of the Society of Jesus, and received by Cardinal de Lugo." Authorities later than Bado, such as Sir Robert Talbor, Nicolas de Blegny, and others, are hardly worth consideration. Talbor merely states that " the Jesuits were the first that brought it from America "[100] whilst de Blegny says that the bark was first brought from America by five Jesuits in 1650.[101] But before this date Bollus had conveyed the bark to Cardinal de Lugo in 1649,[102] although this does not prove that Bollus's consignment was the first to reach Europe. Bado's correspondent Dr. Villarobel says, however, that " the first to bring the Bark was actually the Count of Chinchon," and subsequently adds that the remedy " is found today (c. 1663) at the Count of Chinchon's, which his father the Viceroy of Peru in 1632 had brought, and by whose bounty not once only I obtained it for the use of the sick . . . about 30 years' antiquity are found in the bark."[103] As has been proved, the Count did not return to Spain until 1641 so that Villarobel's statement that he brought it in 1632 is rendered suspect, especially as he also quotes Bollus as saying that " according to the views of others the first conveyors of the Bark were the R. R. Adm. Fathers of the Society of Jesus."[104]

The earliest printed work having reference to Cinchona is invariably stated as being the *Vera Praxis* . . . of Dr. P. Barba, Physician to the Court of Madrid and Professor of Medicine at Vallodolid, published in 1642;[105] but Rompel has conclusively shown that the work in question has no reference to Cinchona at all.[106] In 1905, however, Rompel disclosed the fact [107] that he had discovered in the

[99] Brunacio, G., *op. cit.*
[100] Talbor, Sir R., *The English Remedy.* . . . . London, 1682, p. 1 ff.
[101] Blegny, N. de, *Remedium Anglicum pro Curatione Febrium.*
[102] Bado, S., *op. cit.*
[103] Bado, S., *op. cit.*, p. 202.
[104] Bado, S., *loc. cit.*
[105] Waring, E. J., *Bibliotheca Therapeutica*, London (New Sydenham Soc.), 1878, Vol. I, p. 337; also *Edinburgh Med. Surg. Jl.*, xxvii, 1827, p. 123.
[106] Rompel, J., *op. cit.*, p. 47 ff.
[107] Rompel, J., *op. cit.*, p. 58 ff.

University of Louvain a rare work by Dr. Herman van der Heyden, published in 1643, with an addition dated 1645,[108] in which Cinchona is unquestionably referred to in the earlier part of the book under the name of *Pulvis indicus*, as having been used for tertian and quartan fevers. This name for Cinchona was certainly very common about 1660 and in 1663 Amman places it first among ten synonyms.[109] Sturm also uses the same name at the beginning of his work.[110]

Rompel argues that it is no matter for surprise that so early a mention of Cinchona should occur in Belgium remembering the close association of that country with Spain at that time. He is convinced that the bark came to Belgium from Spain some time between 1630 and 1642—certainly not later, as van der Heyden's book proves. But statements are also encountered in Chifflet and others that the bark was first brought direct from Peru to Belgium by Michael Belga, Physician to the Marquis of Mancera, Chinchon's successor as Viceroy of Peru. That Michael Belga could not have done so is apparent from the fact that he was with his master in Lima from 1641 to 1650, previously to which he had not been in Peru; so that he could not have brought the bark to Belgium until 1650, eight years after it was mentioned as having been used by van der Heyden.

Another common assertion is that the Bark was first brought to Europe by Jesuit Bartholome Tafur when attending a Congregation of his order.

Tafur was appointed Procurator-General of the Peruvian Province in 1642, and could not have arrived in Europe before the end of 1644—again after the publication of van der Heyden's work.

The evidence given above, especially the fact that Cinchona was used in Belgium by van der Heyden as early as 1642, therefore eliminates certain individuals who have by some authority or another been credited with the introduction of Cinchona into Europe:—

[108] Heyden, Herman van der, *Discours et advis sur les flus de ventre douloureux*. . . . Gand 1643, Et l'Addition 1645, p. 97.

[109] Amman, P., *Antiquarii Peruviani historia*. Resp. C. Rothmann. Lipsiae 1663; cap. I, § 3.

[110] Sturm, R., *op. cit.* Part I, § 1.

The Countess of Chinchon,
Dr. Juan de Vega,
Fr. Bartholome Tafur,
Dr. Michael Belga,
Marquis of Mancera,

the Countess because she died before leaving America; de Vega in that he never left Peru; Tafur because he could not have returned to Europe before the end of 1644; Belga because he did not return from Peru before 1650; and Mancera for the same reason.

This seems to narrow the issue considerably. The Count of Chinchon may have been the first to bring a consignment of the remedy on his return in 1641, a part of which could have been transported to Belgium in time for van der Heyden to have become acquainted with its virtues. In fact, Villarobel (in Bado's work) does say in reference to the Count of Chinchon, and his successor the Marquis of Mancera, that "each Prince when he first entered Madrid (on return from Peru) dispensed a great quantity of the Powder for the cure of the sick."[111] Or it may have been brought to Europe by some unidentifiable member or members of the Society of Jesus. It has been claimed that it was first brought by Bernabe Cobo and that

> In his capacity of procurator of the Peruvian province of his Order, he brought back the bark from Lima to Spain, and afterwards to Rome and other parts of Italy in 1632.

Rompel, who makes the statement,[112] gives no proof, without which one is inclined to hesitate to accept the claim especially in view of Cobo's own remarks.

In setting forth his reasons for compiling his *Historia del Nuevo Mundo,* Cobo says in the Prologue:—

> The first is on account of the many years which I have lived in the Indies—not less than fifty and seven, from the year 1596, passed in them, until the present 1653 . . .[113]

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[111] Bado, S., *op. cit.*, p. 202.

[112] Rompel, J., in *Catholic Encyclopedia*, New York, 1910, sub. art. "Jesuits' Bark."

[113] For original text *vide* Appendix (j).

The phraseology of this statement, specially in the absence of any authentic record to the contrary, admits of no other interpretation save that he remained in America during the whole of fifty-seven years. "I have lived in the Indies *not less* than fifty and seven years" says Cobo—"from the year 1596 . . . until the present, 1653." Had he passed an interval of several years in Europe as Rompel suggests, the statement in Cobo's Prologue would not have been strictly accurate.

The facts regarding the introduction of the remedy to Europe may yet come to light. Although the evidence now offered does not provide a solution of the problem, it should clear away some of the difficulties which the task has hitherto presented.

CONCLUSIONS

1. That the first wife of the Count of Chinchon, Ana de Osorio, died before his appointment as Viceroy of Peru. It was his second wife Francisca Henriquez de Ribera who accompanied him to Peru when he assumed office.
2. That the absence of any mention of the remedy or of any serious illness of the Countess in the official Diary of the Count of Chinchon strongly suggests that the romantic story of the cure of the Countess by Cinchona is no more than a fable.
3. That she never returned to Spain, but died at Carthagena, Columbia, on 14th January 1641, and so could never have brought the remedy to Europe, nor distributed it to the poor of her native country.
4. That the following persons who have also been credited with the introduction of Cinchona into Europe could not have done so:—

   Dr. Juan de Vega
   Fr. Bartholome Tafur
   Marquis of Mancera
   Dr. Michael Belga.

5. That the earliest reliable descriptions of Cinchona *by persons living in Peru* are those of Antonio de la Calancha *(ante* 1633) and Bernabe Cobo (between 1630 and 1653).

6. The earliest mention in European literature of the use of Cinchona occurs in Belgium, in Herman van der Heyden's work in 1643, so that the introduction of the remedy must have taken place before that date. Antonio de la Calancha *ante* 1633 stated that its use had " produced miraculous results in Lima." The Count of Chinchon did not arrive in Europe until 1641, and although he may have brought with him a consignment it is hard to believe that the people of Lima, cognizant of the value of this new febrifuge since 1633 or earlier for eight years or more had neglected to send any of it to Europe where malaria was rife. It may be reasonably supposed that if Calancha in 1633 could describe the remedy as " miraculous " some of his fellow ecclesiastics, or merchants, returning home to Spain or Italy would have been quick to take with them so profitable an investment as a supply of a remedy Europe was craving for. Throughout the 17th century a vast trade was done by merchants introducing to Europe medicinal substances from the New World, and it is unlikely that Cinchona once its qualities were known in Lima had to wait long for its introduction to Europe. This event it may be assumed therefore took place somewhere round about 1633.

I should like to record my indebtedness to the Trustees of the *Wellcome Research Institution,* London, for granting me facilities for the publication of this work, in particular to Sir Henry Dale and Professor T. R. Elliot for having read my manuscript and made helpful criticisms. I also wish to express my thanks to Miss B. M. Pycraft, of Oxford University, and Major J. S. Uribe for their valuable aid on many occasions.

APPENDIX

Original Texts

(a) La Condamine, C. M. de. *Mémoires de l'Académie Royale des Sciences.* Paris, 1738. pp. 226-243.

" J'ai trouvé dans un ancien Dictionnaire de la Langue *Quichoa*, c'est ainsi qu'on nomme celle des anciens *Pérouans*, du temps des *Ingas*, imprimé à Lima en 1614, le mot *Quina ai* aujourd'hui hors d'usage & inconnu des Naturels mêmes du pays, dont la Langue s'est fort alterée par le mêlange de l'Espagnol, ce mot est traduit dans le Dictionnaire par le mot Espagnol *Mantelilla India*, espéce de mante ou de cape dont s'enveloppoient les Naturels. Comme la Langue *Quichoa* est fort peu abondante en termes, & que pour suppléer à cette disette elle n'a gueres de mot dont la signification ne s'étende par métaphore à diverses autres, on peut présumer avec assés de vrai-semblance, qui *Quina ai*, qui s'entendoit ordinairement d'un manteau, pouvoit aussi signifier écorce quand el étoit question d'un arbre, ou du moins, avoir eu anciennement cette signification; je compte pour rien la petite différence dans la terminaison si ordinaire aux mots qui passent d'une Langue à une autre; . . ."

(b) *Confessionario para los curas de Indios*, Lima 1583; cap. II. " Los ritos del los Indios."

" De los Sacrificios y offrendas"

" Es cosa comun entre Indios adorar a la tierra fertil, q̄ es la tierra q̄ llaman Pachamama, o Camac pacha, derramando chichaenella, o coca o otras cosas, para que les haga bien.

Y para el mismo effecto en tiempo de arar la tierra, barbechar, y sembrar y coger mayz, o papas, o quinua, o yucas, y camotes, o otras, legumbres y fructos de la tierra suelen ostrecerle sebo quemado, coca, cuy, corderos, y otras cosas; . . ."

(c) Cobo, Bernabe. *Historia del Nuevo Mundo*, MSS. completed at Lima, 1653.

"De la Quinua"

" La Quinua es un árbol del tamaño de un Olivo y de ahí para abajo hasta no crecer más de un estado; tiene les ramas y tronco rojos, con la corteza muy delgada, que con facilidad se despide . . . Es árbol tan fuerte en resistir el rigor del frio y heladas como el Quishuar; y así, sólo estas dos castas de árboles nacen en los rigorosos páramos del Perú, especialmente en las provincias del Callao. Hacen de la Quinua muy buen carbón, que es bien necesario donde tanto frio hace."

(d) Ruiz, Don Hipólito. *Relación del viaje hecho a los Reynos del Perú y Chile* . . . ed. by R. P. A. J. Barreiro, 1931. p. 93.

"Atravesando por varios Ingenios de Minerales y Lagunas bexamos a la Quebrada de la Quinua nombre adquirido del arbol llamado *Quinuar* ó como otros pronuncia *Quinhuar* que abunda en ella y sirve de no poco ausilio a los Mineros del Cerro de Yauricocha para los Edificios y Ingenios y para el fuego, por ser madera fuerte y de resistencia. De este arbol establecimos el género *Polylepis*, nombre tomado de la propiedad que tienen sus cortezas de desprenderse en muchas capas delgadas a manera de vitelas ó de papeles de color melado."

(e) Espinosa, Antonio Vasquez de. *Compendio y Descripción de las Indias Occidentales*. Part II, Book V, Chap. 26 (written before 1628). Vatican Library. Barberini Collection MSS. 3584.

"el arbol de la quinaquina cria tambien otras vaynas a modo de las algarrobas . . .

Del arbol quinaquina se saca una resina de color de higado muy odorifera y saludable, con su sahumerio se consumen frialdades, y reumas de caueça, con esta rezina mesclada con azeite se curan heridas y llagas, y el mismo efeto tiene el azeite que se saca de sus pepitas, y es con mas efficacia el arbol quinaquina es muy hermoso, y su madera muy odorifera, y fuerte, el color de su madera blanco y leonado a vetas."

(f) Cobo, Bernabe. *op. cit.*

"De la Quina-Quina"

"Quina-Quina llaman en el Perú á un árbol grande y hermoso como un mediano olivo; la hojo del tamano y talle que la del limón ceuti; el tronco en algo colorado, resinoso y aromatico. Es árbol caliente en el segundo grado, estiptico y seco y de suave olor. Echa unas pepitas por semilla del tamaño de almendras, de color amarillo y de sustancia oleaginosa, que con fragancia, huelen amigablemente; son asimismo calientes y estipticas en el segundo grado, y secas en más del primero. Sajando el tronco y ramas destila una resina olorosa que congela tanto, que se muele en polvos y queda de color negro claro le cual es caliente y más seca que las pepitas.

Nace este árbol en la tierra caliente de la provincia de los CHARCAS *en el Perú.* Si con su corteza se limpia de ordinario la dentadura la aprieta y conforta; y el palo raspado y cocido con Polipodio, hojas de sen y anis, y el cocimiento tomado en ayunas algunas mañanes, desopila el estómago, higado y bazo mundifica y limpia la vejiga. Las hojas majadas y puestas sobre las heridas frescas, las desecan y juntan, y el cocimiento dellas con salmuera, hojas de *Chilca* y *Molle*, deshincha las piernas gotosas.

De las pepitas de este árbol se hace un aceite maravilloso para toda herida fresca, el cual se usa mucho en Potosi y hácese desta manera:—majadas cuatro onzas destas pepitas, se echan en la cuarta parte de un cuartillo de vino añejo por espacio de dos horas, y luego se echa todo en dos libras y media de aceite, y á fuego manso cuece hasta que se consume el vino; y quitado del fuego y frio se cuela y se vuelve á la olla ó cazo, y se añade una libra de trementina común, y con ella da un hervor no más; y apartado del fuega, se le echan de polvos de incineso y de mirra, de cada cosa onza y media, sutilmente molidos, y se menean para que se incorporen; y tapado el vaso, se guardá; y hace maravillosos effectos.

Damás desto, sahumandose asi con las pepitas como con la resina, se quiten los dolores de cabeza. Las pepitas tostadas y tomadas con vino son contra el dolor de ijada y ventosidades, y majadas, mezclades con polvos de la resina y todo ello cocido con vino con un poco de la resina de *Molle*, incienso y miel de abejas, aprovecha el cocimiento, después de colado, contra las llagas sucias y cavernosas, porque mundifica y deseca con suavidad.

La resina sutilmente molida y hervida con aciete común ó con tocino ó manteca, junta las heridas frescas; y el polvo echado sobre la herida, atrae cunata humedad tiene y la deseca."

(g) Cobo, Bernabe. *op. cit.*

"Del Bálsamo"

"El árbol que destila el Bálsamo en estas Indias no es de sola una especie, sino de tres ó cuatro. Es este licor semejante el *Bálsamo* de Siria, y no inferior á el en olor y facultades. La una especie de árboles que lo dan y de major grandeza, nace en la diócesis de Guatemala, á donde yo lo vi, y en otras tierras calientes; crece más que un Moral, y hace un tronco grueso y de madera olorosa, y tan recia, que sirve en los usos que requieren madera muy fuerte, como es para ejes de ingenios de azucar y otros semejantes.

Las hojas son como de Almendro, algo mayores y mas redondas y agudas: las flores amarillas en los extremos de los ramos al principio en forma de largos bolsillos, con cierta simiente blanca que inclina á color amarillo.

Sajardo el tronco deste árbol, destila el licor que llamamos Bálsamo, de color de arrope, rojo tirante á negro, de sabor agudo algo amargo, de olor vehemente, pero gratisimo. Sécase también este mismo licor de otra manera, que es cociendo en agua los renuevos y ramos tiernos picados menudemente, y cogiendo con un vidrio el licor que nada sobre el agua. No es tan bueno este segundo como el primero, pero el uno y otro son buenos para sahumerios y para curar infinitas enfermedades. De su semilla se saca también un aceite muy provechoso.

El segundo árbol que destila Bálsamo es de mediana grandeza; el tronco no á mas grueso que el muslo, de madera solida y olorosa, tiene las hojas poco mayores que un real; la flor es pequeña y blanca; la fruta semejante a las bayas del laurel. Sacase el licor deste árbol de sus cortezas remojadas por via de distilación.

El árbol de que sacan el *Bálsamo* en la isla Española se dice *Coaconax*; es del grandor y hechura de un Granado, no muy agradable al paracer; tiene uno, dos y tres piés como el Granado, y en la hoja también se la parece, salvo que la tiene menor; pareciendo en el tronco que está seco, y las hojas que están verdes; no have copa, sino que las ramos suben derechas cada una por si. Alumbra se madera como tea y da buen olor de si. Sácase el *Bálsamo* por incision sajendo el tronco del árbol, y también cociendo y exprimiendo las hojas.

En el pueblo de Tolú, diócesis de Carthagena, se saca también *Bálsamo* de un árbol de la grandeza de un granado, y este *Bálsamo* y el primero, son los más preciados, si bien difieren en que el primero es liquido como arrope, y éste de Carthagena cuajado y duro, que se muele en polvos."

(h) Cobo, Bernabe. *op. cit.*

"De árbol de calenturas"

"En los términos de la ciudad de Loja, diócesis de Quito, nace cierta casta de árboles grandes, que tienen la corteza como de canela, un poco más gruesa, y muy amargo; la cual, molida en polvos, se da a los que tienen calenturas y con sólo este remedio se quitan. Hanse de tomar estos polvos en cantidad del peso de dos reales en vino ó en cualquiera otro licor poco antes que dé el frio. Son ya tan conocidos y estimados estos polvos, no sólo en todas las Indias, sino en Europa, que con instancia los envian a pedir de Roma."

(i) Bado, Sebestiano. *Anastasis Corticis Peruviae.* Genoa, 1663. Caput II, Liber Primus, pp. 22-24.

Aegrotabat fortè in Ciuitate Limensi, quae est Metropolis Regni Peruuiae, Vxor Proregis, qui tùm temporis erat Com. del Cinchon (falluntur qui Marchionem de Mancera fuisse dicunt) eratque morbus eius Tertiana febris, quae febris in ea Regione nedum inquilina est, sed immitis, & periculi plena. Rumor huius aegritudinis (vt sit de Magnatibus) per Vrbem statim vulgatus, ad finitima quaeque loca peruasit, Loxamque vsque tenuit. Fluxerint, puto, ab eo tempore, ad id temporis, triginta, vel quadraginta anni.

Praefecturam tùm agebat eo loci Hispanus homo, qui de Comitisiae aegritudine certior factus, deliberauit per Litteras maritum Proregem admonere, quod posteà fecit, arcanis scribens, sibi esse Remedium quoddam, quo si vti voluisset Prorex, sponsor indubius ei erat, conualituram

eius Vxorem, febrique omni liberanda. Admonuit de hoc nuncio Vxorem maritus, quae statim annuit (& vt facile credimus, quae nobis profutura speramus) sinè mora iussit acciri hominem, à quo suppetias sperabat, iussusque est ideò, vt nil tempori dato, Limam se statim conferret, quod ipse peregit; coramque admissus, quae scriptis dixerat, verbis quoque confirmauit, rogans Proreginam, vt bono esset animo, & fidenti, certoque sciret se se conualituram esse, siquidem suo consilio stetisset. Quibus auditis, deliberatum est de sumendo Remedio; quod sumpsit, & mirum dictu, dicto citiùs conualuit, stupentibus omnibus.

Vt id rescitum est à Civitate, non tàm laeta & gratulabunda ad eam accurrit per internuncios, quàm supplex quoque adiit Proreginam, vt opem sibi ferre dignaretur, diceretque, si liberet, quo tandem Remedio tàm citò, tamque mirè conualuisset, vt sibi quoque prospicere posset, perindè ea febri, tàm saepè laboranti.

Annuit statim Comitissa, nec Remedium tantùm dixit, quàm ingentem eius copiam ad se transmitti iussit, vt sic Ciuitati, ea saepè febri laboranti, opitularetur. Nec tàm deferri iussit magnum Remedium, scilicet Corticem, quàm voluit illud suis manibus dispensare frequentibus aegrotantibus. Resq; tàm feliciter cessit, vt sicut ipsa liberales Dei manus experta in se fuerat, in eo admirando Remedio, ità quicumque alii sumpserunt indigentes, mirè quoque sanitatem fuerint adepti. Et hinc factum, vt is Cortex puluis Comitissae vocatus deinceps sit, quod Hispani dicunt los poluos de la Condeça."

(j) Cobo, Bernade. *op. cit.* Prologue.

"Lo primero, por los muchos años que he residido en Indias, que no son ménos que cincuenta y siete, desdel año de 1596, que passé á ellas, hasta el presente de 1653. . . ."

THE VALUE OF HEALTH TO A CITY*

Two Lectures, Delivered in 1873, by MAX VON PETTENKOFER

Translated from the German, with an Introduction by HENRY E. SIGERIST

Second Lecture

I hope I have convinced you that the health of a city is of some value, if for no other reason than for the fact that through its mere absence, through sickness, millions are wasted every year in a city like Munich. An additional factor, however, must be brought into the account which from the humane and economic point of view is probably still greater and more important than the loss and costs caused by illness, that is the gain in life and vitality arising to a whole community. So far, I have only discussed what people irrevocably lose, on an average, when they become sick, and not what they gain by not becoming sick but remaining in good health. How many people sustain sometimes quite unusual losses merely because at a given moment, under given circumstances, they were unable to attend to their business and could not give their personal attention to a matter. How often do we hear in families the painful exclamation: If only father, or mother, or some other provident member of the family, had not been sick at that time, or could have lived a little longer! then this or that would have happened or would have been avoided, which would have secured great profits to the family or would have averted great losses. The value of life and health, the value of increased vitality and longer duration of life cannot be expressed in figures. A single day of illness may be such that many thousands of florins cannot compensate for it—and certainly not one single florin.

We shall now raise the question, why the death rate of London

* See this *Bulletin*, 1941, Vol. X, pp. 473-503.

dropped in course of time from 42 to 22 per thousand. With our present knowledge and the experiences we have on the subject, it is still rather difficult to indicate and enumerate all the factors that have contributed to the result, and to determine the effect of every single one. Public health, in the broad sense of the word, includes every factor that has any influence on men's well-being and life. Its field, therefore, appears as quite unlimited and illimitable. It would certainly be wrong to draw very narrow and unalterable bounds but of all the factors that must and have been included, many have a close and many others a more remote interest. It will then be sufficient if we examine the nearest and most pressing tasks. We have to deal with a complex collection of various causes and effects, not with a simple recipe, as perhaps many expect, and we must be very careful not to ascribe too much influence or even the entire result, to single factors or single causes. In doing it we would make the very mistake I censored in my last lecture, the mistake made by those who pretend that the health conditions of Munich are determined by one disease alone, by typhoid fever.

A number of questions arise when we examine the problem more closely, why English cities, as a rule, have so much lower a death rate than the majority of our German cities. Is it the climate, geographic location, or difference of national character? Are the physicians in England, by any chance, more numerous, better trained, or more skillful? Have the English better pharmacies or better institutions for the care and treatment of the sick? Is there less swindel, or humbug, as they call it, with patent medicines and other quackeries? Or it is due to nutrition, housing, clothing, labor and occupations, customs and habits, legislation or social conditions? Is it the result of better sewerage and water supplies, as is so often claimed? Let us try to find an answer to these questions.

The great difference cannot be due to a variety in physical type or race, nor to the climate or geographic location, nor to any of these factors that do not or not perceptibly change in course of time, because in the last century the death rate of London was still 35 per thousand, more than in Munich at present. Yet London was then as today inhabited by Englishmen, was at the same place and had the same climate. There are, today still, cities in England in which the

death rate is far higher than in London. It is, for instance, in Birmingham still 27, in Manchester 30, in Oldham even 40 per thousand. And yet in all these cities Englishmen live in an English climate, and still we have these great differences, about the causes of which people even in England have not a very definite opinion.

This great difference cannot be explained by labor and occupations either, because there is no kind of labor with us that is not performed in England also. Nor is it that we exert ourselves and exhaust our forces in hard labor relatively more than they; on the contrary, it is generally recognized that the English laborer has a greater capacity to work.

There can be no doubt that the medical profession and all institutions for the care and treatment of the sick have a great influence on the health conditions of a population. It is a sad fact that through improper medical treatment, through ineffective and adulterated drugs and through poor nursing and other care, many a patient not only may be confined to the sickbed longer but may even lose his life. With good treatment the sick not only recover their health sooner but also more completely and more frequently than when they are neglected. All that concerns the medical profession and the institutions for the sick is, therefore, of great importance to public health.

It would be an act of the greatest injustice to assume that the lower death rate of London and the higher rate of Munich could be attributed to a difference in the quality of physicians, remedies, and health institutions. We are certainly not boasting when we express the view that, in general, medical practice, so far at least, has been in much better hands all over Germany than in England where no bounds were ever set to quackery. With us, hitherto, only licensed physicians were permitted to practise medicine; charlatanry and all forms of treatment practised by non-medical men were even punishable by law. It is only since the introduction of the imperial German laws, regulating trades and professions, that quackery is no longer punished. Many people are afraid that this law will have a bad effect on health conditions. I do not think that they will suffer any more than they have in England and I also believe that the law will not do any harm to the medical profession. Knowledge and culture give the physicians a far more privileged position and far

more powerful protection than the strictest legal regulations ever could afford. Nevertheless, no reasonable person will expect any improvement of health conditions from this law, the enactment of which must be considered merely as the disagreeable consequence of a general legislative principle of our time. It would also be wrong to assume that in England the unrestrained practice of quackery has had no perceptible deleterious effect on general health conditions, because the people there are more enlightened, or because the physicians feel stronger in their competitive struggle with lay healers, as a result of better instruction and more practical training. On the contrary, the English have recently been endeavoring to provide institutions for the training of physicians which in many points follow the pattern of the German curriculum. We have just as many great physicians, surgeons, obstetricians, psychiatrists and ophthalmologists. England is slightly ahead of us only in the instruction of medical students in hygiene and public health. All medical schools have had chairs for the subject for a long time and they are anxious to fill them with good men. In curative medicine, the physicians of Munich enjoy undoubtedly and undisputably as high a reputation as those of any other country or city, and the people are under the greatest obligations to them. It is only to be hoped that the people will soon recognize that the physician's task is not only to help when disease has broken out, and to restore health, but also to prevent the development of disease, whenever possible and on a large scale. The physician, properly trained and properly used, will under all circumstances be the most intelligent and most effective instrument not only of private curative medicine but also of public health. No one has so many opportunities of scattering the seeds of health education than the physician exercising his profession.

In like manner, all the other institutions for the treatment and care of the sick are of the greatest importance, pharmacies, hospitals, nursing, etc. Pharmacies must be considered as institutions in which certain substances prescribed by the physician or sought by the public, for the restoration or preservation of health, may be found at any time pure and unadulterated. Pharmacies will, therefore, always be necessary, because the people have no other possibility of testing the purity of most such substances than by using them and ascertaining

their effect on their own bodies. If we compare the German pharmacies, and particularly those of Munich, with the English, no matter how stringent the test may be, we are sure that the comparison will not be to our disadvantage.

Our hospitals are also relatively adequate and satisfactory, in number and equipment; they are easily accessible even to the poorest of people, and the medical treatment and physical care they offer, are intelligent, friendly and entirely adequate. The last war has amply demonstrated that Munich is not afraid of any sacrifice for its hospitals. During the war we saw exalting examples not only of the skill and self-sacrificing devotion of our physicians but also of the willingness of the King, the royal authorities, the community and private individuals to bring sacrifices for the erection and equipment of hospitals at home and abroad, for the equipment of large hospital trains, and for the provision of devoted and unselfish nursing care. In the latter field, eager and well trained women, members of lay and monastic societies, have accomplished a great deal. We are indeed not boasting when we say that in these particular matters excellent work is being done in Munich, certainly not less than in any other city of any country. There is no doubt that everything in this world is susceptible of improvement and increase and in these matters too we must not stand still and relax in our efforts to progress still further. But I do not believe that we are lacking in medical facilities and I do not believe that the fault rests with physicians, pharmacies, hospitals and nursing for our having a death rate of 33 per thousand while it is only 22 in English cities. The cause or causes must be sought in some other direction.

At present it has become the fashion to think that the health conditions of a city are determined exclusively by good sewerage, abundant water supply and good toilets, and particularly by the introduction of water-closets. I certainly value these things very highly and it would be hard to find anyone who had a greater appreciation of them. I also recognize that we still have a long way to go in Munich until every house and every street can be drained thoroughly and rapidly and until we have running water on every floor of every house. Water is one of the chief means used for keeping the house as clean as possible, and it is a great handicap to

cleanliness if every drop of water must be carried laboriously to the upper floors of our dwellings. It is precisely as if we had to fetch air from outside with a balloon for every breath we wish to take; everybody agrees that in such a case we would breathe less frequently and less freely. It is about the same with the uninterrupted supply of water for all household purposes. A more abundant supply of water calls also for better facilities for the drainage of the used water and other refuse. The stench that permeates habitations from poor toilets is also generally recognized as harmful to health, and in this respect too there is still a great deal to be done in Munich. And yet, even if the city would undertake all necessary measures in regard to these three points, and would follow all recommendations, I still could not possibly promise that the death rate would drop automatically from 33 to 22 per thousand.

A study of the history of health conditions in London, more than anything else, keeps us from indulging in such sanguine hopes. During the period from 1846 to 1855 London already had a mortality of only 25 per thousand, in spite of two epidemics of cholera that occurred during the period. At that time sewerage and water supply were generally still in a very bad condition in London, worse than in Munich today, and worse than they have ever been in Munich. It was at that time that a regular storm broke loose against the highly defective sewerage system of London that polluted and infected the banks of the Thames. In the summer, at low tide—which makes itself felt far up the river—there used to be such a foul odor that some days even sessions of Parliament had to be adjourned on account of it. It was at that time that the great scientist Faraday, sailing on the river from London Bridge to Hungerford Bridge, on July 7, 1855, from 1.30 to 2 o'clock p.m., observed at every one of the seven piers at which the boat stopped that perfectly white objects dropped into the river water were no longer visible only one inch under the surface, in spite of bright sunshine. Faraday considered this observation so important that the same day he wrote a letter about it to the editor of the Times, for the benefit of the public.

At that time the Thames was the *cloaca maxima* of the city and its sewage was tossed backwards and forwards twice a day by

the fluctuations of the tide and thus filled the air with stench. And the content of this very *cloaca maxima* was at the same time the principal source from which the drinking water was drawn for a large section of London, to which this liquid, more or less well filtered was delivered by the water companies.

These horrifying conditions moved the city fathers to spend many millions of pound sterling from 1860 on to our day for the reconstruction of London's sewerage system. Now no sewers are allowed to empty into the Thames within the city limits; the sewage is carried in two covered canals, one on each bank of the river, and is discharged below Woolwich. This condition also led to the passage, by Parliament, of an act obliging all companies that were furnishing filtered water from the Thames to move their filtrating and other plants up the river, not only beyond the influence of drainage from the city but also above the reach of tide water, which is as far as the vicinity of Richmond. These great and costly works are now completed and some people might expect that from now on nobody would die in London. Yet, the death rate has dropped from 25 to 22 per thousand only and it is hard to tell how much influence must be attributed to the fact that from 1860 on cholera was negligible in Europe, and particularly in England. Many other factors may also have contributed to the improvement of health conditions.

An inquiry of John Simon on the effect of good sewerage and water supply in other English cities has yielded a very similar result. This outstanding physician and sanitarian whose eye is as quick in detecting cause as his hand is steady in guiding the helm of English public health, has ascertained the death rates of 24 English cities with populations of from 4,000 to 160,000, with an average of 18,000 before and after the introduction of the sanitary works, a term that designates chiefly good sewerage, water-closets and water supply. These 24 cities had before introduction of the sanitary works an average death rate of 24.7 per thousand and thereafter one of 21.9 which amounts to a reduction by 2.8 per thousand, or 3 per thousand in round figures, in other words, almost exactly the same amount as in London. Other English cities, therefore, do not differ from London; before introduction of the sanitary works the death rate was in London and in the rest of England already much

lower than with us and there is no reason for assuming that by applying the same measures we would reduce our death rate more than London or other English cities did. Sewerage and water supply are, therefore, only to a small part responsible for the fact that the average duration of life is longer in London than in Munich. There must be other causes involved.

I should now proceed with the consideration of other public health factors but I am delaying intentionally in order to emphasize the value of sewerage and water supply. I am afraid that I may have discouraged many from being further enthusiastic about sewerage and more abundant water supply. I would regret it very much since Munich still has a great deal to accomplish in this respect—but I could not withhold from you the truth. To the honest seeker of truth, truth is never harmful although it may destroy many pleasant illusions. Even if we could not reduce our death rate by more than 3 per thousand of the living, still let us realize what value such a small amount would represent for a city like Munich. We may derive some encouragement from it.

Let us remember in what way we calculated, in the previous lecture, the loss caused by sickness. We figured for every day of sickness 1 florin for costs and loss, an amount that we considered a minimum, far below the average. If the mortality or death rate of Munich dropped only from 33 to 30 per thousand, what minimum value would such a reduction represent in terms of money? If at present, 33 individuals die annually for every 1,000 population, it means that 5,610 die in a total population of 170,000. If, in the future, only 30 individuals should die for every 1,000 population, it would mean that 5,100 would die annually in Munich, or 510 less than today. We may conclude from all past experience, that as the deaths decrease, sickness decreases also, in the same ratio, and if we have 510 fewer deaths, we must have fewer cases of sickness in proportion. From many years' experience in hospitals and other public institutions of the city, we know that the ratio between the deaths and the cases of sickness is such that in Munich we must always count with at least 34 cases of sickness for every death. A reduction of 510 from the death list would represent a reduction of 17,340 cases of sickness. All we need now is a figure for the average duration of each case

of sickness. In the hospitals, according to Wibmer, each case of illness, from its admittance to its termination in recovery or death, lasts, on an average 18.5 days. Before entering the hospital, however, people, as a rule have already been sick for a few days and after leaving the hospital they are, as a rule, unable to work for a few days. We come, therefore, much closer to the reality if we figure with 20 days for the average duration of each case of illness in the city. According to a communication for which I am under obligation to Dr. Lindwurm, we must count today with an average of 20 days per patient even in the General Hospital. On this assumption, the reduction in the annual volume of illness by 17,340 cases represents 346,800 days of sickness, and counting only one florin a day for losses, the total gives an equal amount of florins.

These 346,800 florins represent a clear annual saving and can be considered interest on a capital. We are, therefore, justified in asking to what amount of capital this reduction in death rate corresponds or we may ask, how much capital money the city of Munich may still spend on better sewerage and more abundant water supply so that, with a resulting decrease of the death rate from 33 to only 30 per thousand, the investment still appears economically justified and brings in the customary interest. It is true that the city of Munich can obtain capital at 4½ per cent., possibly even at 4 per cent., but let us count with 5 per cent. 346,800 florins capitalized at 5 per cent. is equal to 6,936,000 florins. In other words, about 7 million florins could be spent at present for the sewerage and water supply of Munich and the capital thus invested would still yield a profitable interest. The city fathers very justly are no longer as ill-disposed toward such expenditures as they used to be. In the past it was necessary to urge them with great persistence and for many years before a few hundred thousands could be obtained for such purposes.

Before we proceed, I would like you to figure out, how much capital it would represent if some day only 22 died for every thousand of the 170,000 inhabitants of Munich instead of 33, in other words, if we had the death rate of London. Such a death rate would represent an annual saving of 1,870 human lives, of 63,580 cases of illness, and of 1,271,600 sickness days. Capitalized at 5 per cent. this corresponds to a capital of 25,432,000 florins. Munich's wealth

would be increased by that amount merely as a result of improved health conditions. Whoever makes Munich as healthy as London, bequeathes, so to say, to the city a capital of so and so many millions.

If we wish to attain this result we must do more than pay attention to sanitary works, as the example of England has shown very clearly. We must not content ourselves with improving our sewerage of which we have a good beginning in the new sections of town, the Ludwigs—and Max—suburbs, planned and constructed by Baurat Zenetti. We must not content ourselves with providing every house with more abundant running water and with providing quick and safe removal of many refuse matters. In applying these three measures we solve not even one-third of our problems, as foreign experience has shown. And so we must look around for other factors, in many other directions.

Our health is also determined, to a large extent, by nutrition; not only by the quality of food but also by its quantity. What we consume may not only be good or bad, but also too little or too much.

Nourishment, in the widest sense of the term, includes everything that we consume, air, water, foods and drinks, and also luxuries. Since we usually obtain air and water free of charge or, at least, at little expense, we, as a rule mean only articles of food and drink when we think of nourishment. It is but recently that scientists began to undertake exact quantitative investigations in the field of human nutrition with various foodstuffs and various combinations of such. Long ago, Baron von Liebig, pioneering in this field also, established guiding principles for the nutrition not only of plants but also of animals and man. His principles, however, and the conclusions derived therefrom have been developed very slowly, by beginning with the lower and advancing to the higher organisms. The movement initiated by Liebig in the nutrition of plants was applied and developed much sooner in practical agriculture than in scientific botany. The same happened with his ideas on the nutrition of animal organisms and the attention paid to them by the science of physiology. In this field too, the farmers as practical cattle breeders experimented along his ideas long before the physiologists did. Professor Carl Voit, who is also a disciple of Liebig, was the first to undertake comprehensive investigations on the various problems

of animal and human nutrition from the standpoint of physiology. He has gradually summarized his results in a clear and simple system and with his students he is working indefatigably and very successfully in developing it so as to make it applicable to human nutrition. It is a remarkable fact that today almost every educated farmer knows exactly how much protein and other substances he must feed to a hog, a sheep, a cow or an ox, if he wants to produce a definite result. He knows what composition of fodder is required for maintenance, for fattening, for the production of milk or for muscular development. Man, however, has hardly been touched by the rays of the rising sun of the science of nutrition. Many, of course, will say: "We do not need these rays in order to live well; we have done it before without them." It is quite true that plants and animals and man existed, developed and thrived long before scientific principles could be established for their nutrition. We must fully admit that, if we could live only on what has been ascertained scientifically, all of us, as many as we are, would have perished long ago. Science does not precede existence and life; on the contrary, science in itself is only a slowly and late ripening fruit of civilized life—but we must not forget that life is being fertilized by this fruit over and over again. Since problems of nutrition, following powerful trends of science, are being investigated along such lines, we already obtain more grain from the same fields and more meat from the same animals than heretofore, with less material. Thus the influence of science will be felt more and more in human nutrition also and the results will certainly be very useful and profitable.

In the meantime, there are still many prejudices against such experiments in human nutrition, but they will soon be overcome in view of the results obtained with such methods in the nutrition of man's domestic animals. Then, it will be possible to apply scientific principles in human nutrition too. Agricultural institutions already spend annually, much to the benefit of agriculture, many thousands of florins, and most of them have larger funds available for experiments on animal nutrition alone than medical faculties have for the whole field of human physiology. Is the nutritional problem of the inhabitants of a city less interesting scientifically, is it really

practically of less value than that of sheep, oxen, or hogs? If the city of Munich appropriated a few thousand florins for investigations on the most rational diet of its 170,000 inhabitants, would it really be more difficult to justify such an expenditure than the nutrition budget of an experimental agricultural farm?

Food is not only what we eat but also what we drink and in the latter case not only quality but also quantity has to be considered. An excess in the use of an otherwise harmless beverage causes to the organism quite unnecessary labor if only from the fact that heart and kidneys must eliminate it through increased action.

If we had to answer, at the present moment, the question how far nutritional conditions are responsible for the higher death rate of Munich, we would feel just as embarrassed as many a student who has hit a very difficult question in his examination. The student is better off, because he can go home and read in the textbook what he should have said; as a rule, he will remember the correct answer all his life. In our case, however, even the professor can give only an incomplete answer. The textbook still has to be written and it will cost much labor, time and money to complete it. In the meantime we have a definite figure only for the average mortality of the inhabitants of Munich but we have no such figure for their average nutritional need.

It is, therefore, necessary that we apply ourselves to this task which is becoming more urgent every day, since the prices of all foodstuffs are rising continuously. So long as man finds himself in circumstances that permit him to have all the food he wishes, and to select it freely, he usually finds instinctively what is good for him; but when he has to contend with poverty or when the food he receives depends on the will of another, then we need standards in order to know what kind of food is necessary and what the minimum quantity is. In drawing analogies between animal and human nutrition we are not degrading man, as some people perhaps might suppose. We may esteem man for his mind very highly and may consider him basically different from animals; there is a real difference between the two but we certainly cannot extend it to physical matters, because physically animals and man are very similar. There is a tremendous difference between the soul of a nursing mother and a cow but the

milk they both give is very similar and one can be used for the other. Mother's milk and cow milk can be substituted for each other. It would be possible to raise a calf on mother's milk, just as we feed children with cow milk.

An important element in the death rate of Munich is the mortality of children under one year. It is very high in Munich and is due to a variety of causes that we cannot discuss in detail here; they require, besides, further examination in many ways.

Housing conditions are also extremely important. Housing exerts a great influence on our health in two ways, in that it must, first, allow us to get the fresh air we need and, second, protect us against heat and cold. We cannot deny that these two objects which we endeavor to maintain by one and the same means, often conflict with each other. It is like two neighbors who encounter each other on the same premises in the performance of their industrial occupations. In such a case they simply must come to an understanding and must learn to get on with each other. For a good contract there must not only be complete agreement in regard to all persons and objects involved, but also and primarily a correct appreciation of mutual needs and good workable regulations to satisfy them. And then the contract, once established, must be carried out in practice conscientiously and intelligently. It would be very tempting for me to discuss the subject of housing in greater detail but the time I have available for my lecture does not allow me to do more than touch on a few points. In English dwelling-houses the air is, in general, maintained in a purer state than in ours, partly because the homes are kept spotlessly clean so that the air contaminates less when it passes through them, and then also because the air is changed more rapidly. This is largely due to the fireplace that the English have in every parlor. Such a fireplace functions like a permanently open window, drawing the air from the room into the open. The English fireplace is a very poor heating device but good for ventilation, and helps also when there is no fire in it. The English people are generally less afraid of draft than we are and I really think that this habit or custom has a considerable influence on health, in general.

The degree to which dwelling-houses are overcrowded with people

presents another serious problem. A room that is adequate for two people may be much too small for three or four, even if they are still able to sit, walk, stand up and lie down in it. We have a shortage of housing facilities in Munich not because we have not enough dwelling-houses but because those we have, are too small and not spacious enough. Our architects seem to take great pain in finding out how they can crowd the greatest number of rooms in the smallest possible area and how they can squeeze them into the smallest possible volume. The result is that an eight-room apartment built today often has not more space than a four or five-room apartment built formerly. Imagine the small, overcrowded houses of Munich, inhabited by people who are afraid of draft and cold air; remember that a large portion of the air that enters the houses of Munich from without, must pass over toilet sewers and kitchen sinks before it is breathed by the occupants of the rooms. I think we can hardly avoid the conviction that there may be many a factor in our housing conditions which is harmful to health, in general, increases the mortality, and which in the future must be improved partly by education and partly by regulations.

The civil power or police authority is, as a rule, well disposed and perfectly willing to carry out whatever medical science places conveniently into its hands for execution, but in regard to police regulations on housing we still have a long way to go. We lack broad viewpoints and therefore, still spend too much effort on trifles. In England, for instance, everyone may paint his room with Paris green or use a wallpaper that contains it. The police will not bother about it in the least but, in England, a justice of the peace will evacuate and condemn a dwelling-house as soon as it has been overcrowded beyond a certain measure, or has otherwise been found unfit for human habitation. I do not mean to say that I have no objection against the use of arsenic dyes in wallpapers and paints but I would be much embarrassed if I had to state how much healthier Munich has become since our police has so strictly forbidden the use of Paris green. Once we have decided that the air in the house should be as clean and pure as possible, we may well pay attention to the most minute detail—but we must not consider our job done when we have killed a fly, while we still have elephants to contend with.

The purpose of clothing is to help us in maintaining the warmth of our body; it also serves as a protection of the skin. I cannot say to what extent this factor is responsible for the lower mortality of England as compared with that of Germany, but so far as I know the English are somewhat ahead of us in this point also. English clothing materials are often better and more durable than ours. The bed must be considered one of the most important garments and the English bed is, as a rule, more roomy and airy than the German. The skin is an important organ of our body and the most sensible regulator for the escape of its excess heat. In England, the skin is attended to very carefully and kept as clean as possible. This requires not only good underclothing, frequently changed, but also the use of water, soap and baths. Facilities for bathing are almost invariably found in English households; with us they are the exception. Many people here are satisfied with one quart of washing water in 24 hours. Everything that contributes to improving the condition of the skin is of the greatest importance, because a vigorous skin stands atmospheric changes much better and protects us against many diseases.

Customs and habits exert no small amount of influence on general health conditions. It would be worth the trouble some day to make a study of our customs and habits and to find out whether they contain elements that conflict with the requirements of hygiene and should better be changed. I think such a study would bring forth many striking facts. Customs and habits include, in my opinion, the amount that an individual generally spends from his earnings or income for food, drinks, housing, clothing and other items, and also for luxuries. Customs and habits are, to a large extent, responsible for the fact that many people are in want of bare necessities while at the same time they indulge in superfluous luxuries. How many a man starves rather than give up drinking excessively. We find that our children's health suffers when they are exposed for a number of hours to the atmosphere of ill-ventilated school rooms. Can the horrible atmosphere of most of our taverns in which many people spend their time almost daily from evening till midnight smoking, drinking, talking or playing cards, be in any way conducive to health? Whoever knows the value of pure air cannot understand how people can go to such places for pleasure, for recreation, as they

say. I think that the custom that compels people to frequent the tavern is much more harmful to health than the law that compels us to send our children to school.

Political and social conditions are also influential upon the health and mortality of a population. All over the world the rich generally enjoy better health and live longer than the poor. Every epidemic, whether intermittent fever, typhoid or cholera, takes a larger toll from the poorer classes, sometimes and in many places to such an extent, that particularly cholera was a few years ago still called a disease of the proletariat. The poor, of course, do not suffer more from disease than the rich because they have less cash in their pockets but only insofar as they are deprived of the necessities of life. Uncleanliness is frequently associated with poverty and uncleanliness has always been the most dangerous breeding ground for all diseases. We do not solve the problem by providing the poor with the most necessary food, housing and clothing unless we at the same time educate them to painstaking cleanliness.

Since health, like disease, is transmitted to a certain extent from parents to children, the value of an ordinate life that follows the rules of hygiene, is easily apparent—not only for the individual, but also for his offspring, for entire generations, and thus for the gradual improvement of the race. The value of sound family life cannot be estimated high enough in public health. Decency and morality are not only an ideal good, the value of which may perhaps be felt in a future life; they represent a very tangible good in this world also. Unrestrained, licentious, and immoral men very often undermine their health and thus bring misfortune not only on themselves but on their families and descendants. I am sure that the puritanical trend in the English nation has contributed in some way to the improvement of their health conditions. At the Social Science Convention, held last year in Plymouth, the chairman of the section on public health, Professor Acland, of Oxford, was able to begin his address on health with the unchallenged statement "that the personal health code could be summed up in two words, cleanliness and Godliness." Cleanliness and morality, in every respect, shall be our motto also.

To these two words of the English professor let us add a third one

which is just as noble, charity. In every large community there are always many people who have not the means to procure for themselves the things that are absolutely necessary to a healthy life. Those who have more than they need, must contribute to supply these wants, in their own interest. It is not a matter of indifference if, in a city, the dwellings of the poor become infested with typhoid and cholera but is a threat to the health of the richest people also. This is true for all contagious or communicable diseases. Whenever causes of disease cannot be removed or kept away from the individual, the citizens must stand together and accept taxation according to their ability. When a city provides good sewerage, good water supplies, good and clean streets, good institutions for food control, slaughter houses and other indispensable and vital necessities, it creates institutions from which all benefit, both rich and poor. The rich have to pay the bill and the poor cannot contribute anything; yet the rich draw considerable advantages from the fact that such institutions benefit the poor also. A city must consider itself a family, so to say. Care must be taken of everybody in the house, also of those who do not or cannot contribute toward its support.

I must now draw my lecture to a close, having already claimed your attention for a long time. That health has an ideal value, is generally accepted, but in these two lectures I wanted to show you that health has also a very tangible value to a city and that there is no better investment for money than in institutions for the preservation and improvement of health. I wanted to draw your attention to certain points of public health in which conditions in Munich are just as good, perhaps even better than in other places that have a lower general death rate. And finally I have also indicated a number of points in which we are deficient, in my opinion, and which we shall have to improve. In regard to these latter points, I am not yet in a position to enter into details. In public health it is not enough to form an opinion and to give directions on the basis of it, as is usually done in private medical practice, where only two individuals, physician and patient, are in consultation. In public health, directions must be strictly motivated and justified, especially when the organs of the state and of the community have to issue and carry out the

directions. They must first be convinced of their necessity and usefulness and may not act merely because they have confidence in you, as the patient does who trusts his physician. They are responsible to the public for such directions and must, therefore, have good reasons for their adoption. There is no time today to make and discuss suggestions or recommendations on any single subject. Popular lectures, besides, are hardly suited for the purpose. Their object, as it seems to me, is rather to stimulate interest in a subject and arouse an audience to approach it with sympathetic understanding. I would be extremely happy if I had convinced my entire audience of one thing only, namely that in public health the city of Munich, the first city of Bavaria, has a great cultural task to fulfill which calls for the cooperation of all of us.

In order to be able to work together successfully, we must first be well informed about what is desirable and what is practicable, about the various aspects of public health and about its actual condition in Munich. I may venture to say here that I not only hope but that I am convinced that much will be undertaken in the near future, and will be undertaken seriously. Our mayor, Dr. Erhardt, was fully impressed with the importance of the problem and the necessity of its solution, ever since he entered office. He has already taken the initiative and has prompted several preliminary measures. In order to prepare the future intelligently on the basis of past and present conditions, he first had a compilation made of all the public health regulations and laws enacted in course of time, that are still valid and still have the force of law in Munich today. This compilation made by a lawyer, Mr. von Amira, has been published under the title, *Gesundheitspolizeirecht der Stadt München*, as a supplement to the official reports of the city. This preparatory work was absolutely necessary. No matter whether ordinances are adequate or inadequate, whoever wishes to enter the public health field, must be familiar with them and must know for which tasks there already is a legal foundation and for which there is not. A similar course is necessary when we wish to enact new and better regulations in various fields of public health.

Mayor Erhardt has also requested Professor C. Voit to make preliminary experiments for the establishment of popular kitchens

which shall be operated for people of low income, not on a charity basis but by charging the actual cost. The idea of these experiments is to find out for what minimum price a wholesome diet can be provided in sufficient quantity so that the energy spent by a working organism may be fully restored. What has been given heretofore from popular kitchens and so-called soup kitchens, was as a rule, very cheap indeed, was regular charity. In view of the spent energy it was supposed to replace, however, it was like throwing a penny to a beggar and thinking that as he now had money he could take care of himself. These preliminary experiments have already demonstrated how important and also how difficult the solution of the problem is.

I am further authorized to state here that the magistrate of the city of Munich intends to establish Health or Sanitary Commissions in the various sections of the city, the members of which will be taken chiefly from the citizens and residents of Munich, from the medical profession and from the laity. Since authority in health matters is with us, not concentrated in one hand but very often divided in a somewhat complicated way between magistrate and police, the royal police authorities and the magistrate will have to cooperate very closely. The present director of police, Regierungsrat von Burchtorff, is personally very much in favor of the plan and we have good reasons for hoping that the royal state authorities will also approve it.

The intention is to divide the city into a number of districts, each of which will be the seat of a commission. The members of these commissions must be given official standing. A central organ constituted by police authority and magistrate, will serve as coordinating agency for the various commissions.

The business program of these commissions has not yet been established in detail but there is no doubt that their activities must develop primarily on two lines. One one hand, they will have to cooperate in the application and supervision of already existing health regulations, particularly in the case of epidemics. On the other hand, they must help in securing information about sanitary conditions in their districts. The first task will be very definite and, therefore, simple so that it will not cause much difficulty to the members. The second task, however, will be more difficult and more

time-consuming but I consider it the most important, because the entire future development of our health work will be based on it. In some of the most important health problems we are still very much in the dark. Take one example. The overcrowding of dwelling-houses is generally recognized as harmful to health. If someone were asked, however, how much overcrowding there is in Munich and how the situation could be remedied, he could not possibly give a precise answer. The answer can only be given when we know the number of occupants in every house and the cubic volume of the individual apartments so that we know the average air volume available per individual. We cannot go to work in this field with standards and regulations before we have much more accurate information than we possess today about existing conditions, the conditions we wish to improve and which must be the starting point of our work. And the only way to obtain such information, is by counting the people accurately and by measuring their apartments.

In such a way we must gradually investigate thoroughly all the conditions that have any important influence on health. They must be made evident and we must become aware of them. It is only when we fully know what we have that we can say what we want and what we must change. It is much more effective if we, the residents of this city, attend to our own health problems than it would be, if we appointed some famous expert or called one from outside and let him do according to his judgment.

The health commissions will not be able to achieve anything unless the population meets them with confidence and in a cooperative spirit. I am afraid that in this respect there will be a good many difficulties in the beginning but we must not allow ourselves to be discouraged. We have an example in England which is so often held up to us as the freest country on earth. Any English locality, town or village, including a minimum of 300 taxpayers, which in the preceding 7 years has had an average death rate over 23 per thousand, must under penalty submit to a very strict investigation of all factors relating to public health, as soon as only one-tenth of the taxpayers complain about bad health conditions. And according to the findings, the communities are compelled to undertake certain measures. Thus, in free England it is not the majority that rules in health matters, but a small intelligent minority.

It may perhaps also become necessary to organize a voluntary Public Health Association in Munich where there already is a good deal of interest in matters of public health. Such an association could satisfy the public's desire for instruction and for participation and cooperation in various tasks. It would provide a forum before which the Health Commissions could present their problems, and a common ground where Commissions and public could meet for discussion and exchange of ideas. Yet this may be left to time. Public demand will determine when the moment for such an organization has come.

Convinced as we all are of the high ideal and real value of the health of all, we must stop being indifferent toward questions of hygiene and public health, and each one of us must make it his duty, so far as in him lies, to promote this object in the future. This is what we must do now, first of all.

We need not go abroad, we can be just as healthy and live just as long in Munich as in London. We find this clearly expressed in the history of health conditions in that gigantic city, where even at the beginning of our century the death rate was greater than it is at present in Munich. Hence, it is not the climate, nor the location that are responsible for conditions. What counts is what we do on the spot, what arrangements we make. Every city can be made just as healthy.

NOTES AND COMMENTS

THE MEDICAL BUDGET OF A PATRICIAN HOUSEHOLD: 1548-1568

LEONA ROSTENBERG

In 1533 Paul Behaim aged sixteen, scion of a prosperous Nuremberg family, was sent to far off Cracow to study banking methods at the large mercantile firm of the Florentine magnate, Anthoni de Nobili. To lessen the nostalgia and ennui of the young patrician frequent letters followed the long road from Nuremberg to Cracow.[1] By his sister, his cousins and the old family nurse, his 'mumlein,' the commonplaces of daily life were narrated, births and marriages, death following the ravages of illness and pestilence. Anxious that no foreign malady befall him in this distant land, his family and friends constantly admonished that he be moderate in his choice of food and drink.[2] The welfare of those at home received much consideration. A few months after his arrival in Cracow he was informed that his younger brother and little sisters had been suffering from the "spots" but was assured by his 'mumlein' that "praise to God they had all recovered."[3]

The letters dispatched to Paul during the summer of 1533 contained little to cheer a young boy an odd half thousand miles from home. Not only had the close family friend, Ludwig Imhof, suffered an operation losing a stone weighing almost three lot, but, added his sister Margaret, she feared their father was suffering from the same ailment and was in a weakened condition. Young Paul was to be spared no anxiety. In August he was told of the serious

[1] J. Kamann, "Aus Paulus Behaims I. Briefwechsel" in *Mitteilungen des Vereins für Geschichte der Stadt Nürnberg.* (Nürnberg 1881), III.

[2] ". . . vnnd schau tisch mitt essenn vnnd drinckenn do mitt das du gesundt bleybstus." Peter Anthoni de Nobili to Paul Behaim, March 29, 1533. *Ibid.*, p. 85.

[3] "Vnd der Hennsla vnd das Lutzla vnd das Keterlein haben die felcken [sic (flecken)] gehabt; sy sin aber, Gott dem hern sey lob, alle wider gesundt." Margretta Behaim ['Mumlein'] to Paul Behaim, May 7, 1533. *Ibid.*, p. 86.

condition of his father and the arrival of the dreaded plague. "There is a fearful dying of people here; everyone flees to be away." In September his sister described the ravages of the visitation as beyond all measure. "Not many wealthy people remain here any longer. More than forty have died in a single day." [4]

The reports of Margaret and 'Mumlein' do not refer to the stringent enactments of the council against the spread of the disease. The ill were to be taken immediately to the hospital of St. Sebastian, a municipal institution for contagious diseases. The streets were to be freed of all excrement which was to be deposited in the Peignitz and the Fischbach. All clothes and bedclothes infected by the sick were to be removed from the city and were forbidden to be sold at the Seumarkt or other public places.[5]

Despite the official precautions the plague did not noticeably abate until December when Margaret wrote that "still ten persons die daily." [6] In September 1533 Paul's father had succumbed not as a victim of the plague but the much feared stone. "During his last moments he talked much of you and during his illness he thought of you a great deal" solaced 'Mumlein' to the distraught and lonely son.[7]

It was not, however, until 1536 that Paul was to return to Nuremberg. The events of his future life were now to be recorded in his household journal kept from 1548 to 1568, the year of his death, in which he, a husband and father, entered the minutiae of

[4] "... vnd wiss, das es hie als feindtlich stirbt, das eider man hin weckt fleucht." Margretta Behaim to Paul Behaim, August 16, 1533. Kamann, "Behaims Briefwechsel," p. 100. "Der sterb hie veber hant hyn es sen nit viel reicher leut mer hie." Margretta Beheim to Paul Behaim. September 8, 1533. *Ibid.*, p. 102. "Der streb [sic (sterb)] hat gar uber hant genumen, es streben [sic (sterben)] einen tag ob 40 perschon." Margretta Behaim to Paul Behaim, Sept. 9, 1533. *Ibid.*

[5] Ernst Mummenhof, *Die öffentliche Gesundheits- und Krankenpflege im alten Nürnberg.* (No place, no year), p. 26.

[6] "Des streben halben hatt es ein wenig auff gehört ein tag 1 oder 10 perschon die noch streben." Margretta Behaim to Paul Behaim, December 27, 1533. Kamann, *op. cit.*, p. 114.

[7] "... vnd lecht 2 stundt er starb, da redete er mit mir von dir vnd hat auch oft in seiner kranckheit an dich gedacht vnd oft von dir geredt." 'Mumlein' to Paul Behaim, December 6, 1533. *Ibid.*, 113.

current affairs.[8] Crowded with the details of family expenditure, the maintenance of his estate, his philanthropies, the cost of his books, his tapestries, Behaim's diary contains further much reference to the manifold maladies of daily life.

For general ailments Behaim consulted Dr. Heinrich Wolf, a graduate of the Strassburg Academy of Johann Sturm and a student of the eminent Dr. Joachim Camerarius. Wolf had pursued his medical studies further in Italy and began his Nuremberg practice in 1533 as one of the eight sworn city physicians.[9] He appears to have been a member of the municipal medical committee to test the efficiency of new resident druggists. In 1554 he examined Bartholomew Zimmerman whom he found an able and satisfactory apothecary.[10] Wolf's visits to the Behaim home on the Zistelgasse resulted usually in the administration of a cathartic, a urine analysis and bloodletting.[11] Often his presence was demanded for serious complaints. During the week of December 13, 1558, he sat at the bedside of Behaim's little son Paul "who had been so very ill." In collaboration with a consultant he shared the fee of five florins, six pounds.[12] Wolf attended the elder Behaim in 1566 for eleven days coming often twice daily. His remuneration amounted to six

[8] J. Kamann, "Aus Nürnberger Haushaltungs- und Rechnungsbüchern des 15. und 16. Jahrhunderts." (Aus Paulus Behaims I. Haushaltungsbüchern. 1548-1568 (1576)), in *Mitteilungen des Vereins für Geschichte der Stadt Nürnberg.* (Nürnberg 1886), VII.

[9] Georg Andreas Will, *Nürnbergisches Gelehrten-Lexicon* . . . (Nürnberg und Altorf 1758), IV, 293.

[10] Hermann Peters, *Zur Geschichte des Apotheken-Wesens in Nürnberg,* (Nürnberg 1892), p. 10.

[11] "Adi May 10 [1557] zalt ich dem her doctor Heinrich Wolf, das er mich purgiert und prunnen besehen hat 1 f. gold thut 1 fl. 2 lbs. 3 pf. Adi Aug 22 [1558] dem hern doctor Heinrich Wolf, so mir ein Purgatz geben und zu aderlassen bey mir und meim weib gewesen ist, thut 1 thaler, 1 fl. 1 lb. 6 pf. Kamann, "Paulus Behaims I. Haushaltungsbüchern," p. 102.

[12] "Adi 20 december [1558] . . . und doctor Wolf 1 wochen zu meim Pauluslein gangen seind, als der so heftig krank gewest ist thun 5 florin 6 lbs." [This was the fee for two physicians]. Kamann, "Paulus Behaims I. Haushaltungsbüchern," p. 122. Nuremberg money values for this period are as follows: 1 thaler=1 gold gulden, 2 shillings; 1 gold gulden=4 florins; 1 florin=2 pounds (lbs.); 1 pound=30 shillings (pf.).

florins.[13] During the same year he treated Behaim's wife Magdalena for a boil on her back. The diary entry for September 10th reads: "Dr. Wolf came for five days. He went over [my wife] and purged her. I paid him two florins." [14] Wolf took care of Behaim during his final illness. Magdalena, recalling the expenses of her husband's death, mentions: "Four florins to Dr. Wolf who attended my Paul for twelve days." [15]

Although the family seems to have had confidence in Wolf they called in during the illness of little Paul in December 1558 [16] Dr. Johann Hess, a local physician, who had begun to practice in 1554.[17] Hess again attended the boy in July 1563 for ten days charging the elder Paul three florins.[18] Upon occasion Behaim consulted Dr. Johann Prünsterer who had studied in France and Italy. Regarded by his contemporaries as a man of much talent, he died at twenty-eight as a regular city physician.[19] Shortly prior to his death he gave Behaim a general examination comprising bloodletting, a urine analysis and a purge for which he received three and a half florins.[20] Other practitioners were at times called to the Behaim home. Among these were Dr. Jerome von Amberg who may have been a transient physician allowed to practice only with municipal consent.[21] He was consulted by Behaim for an eye

[13] "Adi 2 marzo [1566] zalt dem doctor Heinrich Wolf dass er bey 11 tagen zu mir gangen ist in meiner krankeyt den tag 2 mal, verert 4 fl. 4 lbs. 24 pf. Kamann, *Ibid.*, p. 113.

[14] "Adi 10 sebtember [1566] als mein weib krank wurd, und ein andrax aufm rucken uberkam und der doctor Wolf bey 5 tagen uber sy ging und burgiert hat, zalt im 2 fl." *Ibid.*, p. 120.

[15] "Adi 7 august [1568] zalt dem doctor Wolfen das er zu meinem Peham 12 tage gangen ist 4 fl." *Ibid.*, p. 116. [Magdalena Behaim continued her husband's account book until 1576].

[16] "Adi 20 december [1558] hab ich doctor Hes auf 2 mal zalt, er bey 2 wochen. . . ." *Ibid.*, p. 122.

[17] Will, *op. cit.*, p. 110.

[18] "Adi 20 juli [1563] zalt dem doctor Hes . . . das er bey 10 tagen zu meim Paulusle gangen ist, als er seer krank ward, veret 3 fl. Kamann, "Paulus Behaims I. Haushaltungsbüchern," p. 124.

[19] Will, *op. cit.*, III, 250.

[20] "Adi 3 may [1553] zalt ich dem doctor Prünsterer das er mir den prunen besehen auch etlich purgazion verordnet hat zu einer aderlas dernach thon 2 fl. 2 lbs. 12 pf." Kamann, *ibid.*, p. 74.

[21] *Ibid.*, p. 77.

discharge and presented a bill for one week's treatment amounting to four and a half florins.[22] Behaim's journal refers to a certain Dr. Bernhart who was summoned during little Paul's illness.[23]

It is not unlikely that Paul, Senior, sought medical advice for his recurrent attacks of the stone which afflicted him as it had his father. The various prescriptions of lapides cancrorum, red coral, the fruit of prickwood and burnet brought him to the several local apothecaries.[24] By the turn of the century there were eight resident druggists in Nuremberg recognized by the city authorities who disfavored any increase in number. In 1551 a municipal decree was passed forbidding the establishment of any new drug-store even were an old one discontinued.[25] This statute was enacted as protection for the local apothecaries whose lot was becoming increasingly difficult. The inroads of the allied crafts brought serious financial injury to their own trade. A memorial drawn up in 1581 assailed the competition of rival dealers. Confections formerly dispensed by the apothecary, it declared, had fallen into the hands of the sugar dealer. "All distilled waters, oils and the like, which were formerly kept by druggists, are now indiscriminately sold by any ignoramus who imagines himself qualified to engage in this traffic."[26]

During his lifetime, however, Behaim had always sought his unguents and pellets from one of the reliable local apothecaries. From him he bought his necessary measure of water "daily required" against the stone.[27] In August 1564 he paid the druggist

[22] "Adi primo december [1555] zalt ich dem doctor Jeronimus von Amberg, er zu mir bey 8 tagen gangen ist da ich die flus in den augen so ser hett . . . thon 3 fl. 3 lbs. 18 pf." *Ibid.*, p. 77.

[23] "Adi 20 januari [1565] nachdem mein Paulus bey 14 tag krank gewest, zalt dem doctor Bernhart, er bey tag zu im gangen ist 1 thaler thut 1 fl. 1 lb. 6 pf." *Ibid.*, p. 27.

[24] "Adi 6 september [1561] zalt in der apotheken für 4 lot krebsaugen zu 12 pf. das lot, mer für 1 qu. (intle) rot corallen, für hannahoedlein, pineln thut als 3 lbs. is für ein pulfer für mich für den stain." Kamann, "Paulus Behaims I. Haushaltungsbüchern," p. 105.

[25] Hermann Peters, *Pictorial History of Ancient Pharmacy*. Translated by Dr. William Netter. (Chicago, 1906), p. 47.

[26] *Ibid.*, pp. 48-49.

[27] "Adi 26 juni [1563] zalt für mich 1 glas vol des stain wasser so ich teglich geprauch 2 lbs. 24 pf. Kamann, *Ibid.*, p. 110.

Jorg Trittler located at the Ploben five pounds, eighteen pfennig for two draughts to be used for the stone.[28] Less expensive was the remedy of a half glass of brandy taken to a pitcher of water obtainable at Trittler's for one pound, twelve pfennig.[29]

Behaim often purchased his medicine at the drugstore of Albrecht Pfister on the Bindergasse. Here he might secure pellets effective against vertigo at one florin per pound, fresh cassia, rose honey and heart flower.[30] On April 30, 1551, he settled a standing bill with Pfister for the past two months amounting to two florins, two pounds, eight pfennig for various drugs.[31] Certain medicines were bought by Behaim from Mathes Perchner the apothecary located on the Kandel. Here he obtained the common laxatives prescribed by Dr. Wolf and an agreeable dosage of rose water for his wife and self costing well over one florin.[32]

Bartholomew Zimmerman whose knowledge of herbs and potions had been satisfactorily tested by Dr. Wolf was frequently patronized by Behaim. Zimmerman had purchased in 1554 the shop of the late Quentin Werthaimer on the Rathhausmarkt which under its new management was found by the medical board as invested with no dearth of simples and compounds although temporarily lacking in certain syrups, electuaries and waters.[33] Here the ailing customer

[28] "Adi 4 august [1564] zalt dem apoteker bey dem Ploben für 2 glas mit wasser für den stain 5 lbs. 18 pf." Kamann, "Paulus Behaims I. Haushaltungs-büchern," p. 111.

[29] "Adi 12 december [1564] zalt für halb seidlein destilirte prentwein zu eim wasser für den stain 1 lb. 12 pf." *Ibid.*, p. 113.

[30] "Adi 5 juni [1564] zalt dem apoteker für 1 grieben für den schwindel zalt dem Albrecht Pfister thut 1 fl." *Ibid.*, p. 111.

[31]

March 29th — two draughts	64 pf.	April 30th — heart water	42 pf.
March 30th — one heartwater	42 pf.	April 30th — manna 4 lbs,	18 pf.
March 30th — fresh cassia	56 pf.	April 30th — heart flower	18 pf.
March 30th — rose honey	16 pf.	April 30th — electuary	38 pf.
March 30th — spices and herbs	56 pf.	April 30th — liver water	24 pf.
March 31st — mint	4 pf.	April 30th — draught	26 pf.

Summa 2 fl., 2 pounds, 8 pf. Peters, *Pictorial History*, pp. 47-48.

[32] "Adi 18 oct [1566] hat mir doctor Heinrich Wolf verordnet 1 purgaz . . . dem apoteker bey dam kandel dafür zalt 1 lb. 26 pf. Adi 3 augusto [1566] dem apoteker zu der kandel für 4 drunkle rosensaft so ich und mein weib auf 2 tag zu einer purgaz eingenommen haben costen 1 fl. 1 lb. 6 pf." Kamann, *ibid.*, p. 114.

[33] H. Peters, *Der Arzt und die Heilkunst in der deutschen Vergangenheit*, (Leipzig 1900), p. 75.

purchased rhubarb extract mixed with cinnamon water or the sweetish white flakes of manna to be dissolved in a strong meat broth recommended as purgatives.[34] During the plague of 1562 he was a frequent purchaser of certain pellets effective in " the deathlike air " selling at seven pounds and electuaries preserved in small zinc boxes to be taken with sorrel-sops.[35] Another measure resorted to by the cautious patrician was a mixture of six glasses of vinegar to two of boiled water.[36] Not only the simples and compounds but the municipal preventatives of the magistracy brought Behaim safely through the contagion of " the deathlike air." The statutes of 1562 directed against the spread of the plague resembled those enacted in 1533. The sick were now transferred to available space in the Hospital of the Holy Ghost and the Lazaretto. Recuperative cases were ordered to keep to their rooms during three weeks of convalescence and were to avoid the markets and churches. In the latter the service was shortened a half an hour during the course of the epidemic.[37] The total number of dead through August and September amounted to 2,583. Although fearful of contagion Behaim showed a certain scientific interest in the ravages of the disease and composed a statistical survey entitled, " A Compilation of the Number of Individuals of Old and Young of Nuremberg who have died in one Week and every Day in the City, at Gastenhof, Wörd and the Lazaretto, begun on August 24, 1562." His own hopes that his family would escape infection are aptly expressed at the beginning, " May God the Almighty deter his wrath from us. Amen!" [38]

[34] " Adi 20 october [1564] der Barthol. Zimmerman apoteker zalt für 1½ quintle rebarbarseftle in eim zimmetwasser für 1 purgazion cost 3 lbs. 6 pf. Adi 19 maj [1560] hab ich 6 lot manna in einer flaischprue eingenommen, zu einer purgatzion costen 1 fl." Kamann, " Paulus Behaims I. Haushaltungsbüchern," p. 104.

[35] Adi 2 september [1562] zalt dem apoteker Bartholmes Zimmerman für etliche schachtele grieben und anders in diesen sterbsleuften gesunt 7 lbs. 11 pf. " Adi Nov. 20 [1562] zalt für mich dem palbierer aufm rathaus für ein latwergle in eim plechen puxle, ist gar vergült für den prechen, auch 1 glas mit sauerampfwasser, damit zu prauchen . . . cost mich 7 lbs. 6 pf. *Ibid.*, p. 109.

[36] " Adi primo septempri [1562] zalt fur 3 mas essig zu 2 glas gesotten gedrank für den prechen 1 lb. 21 pf." *Ibid.*, p. 106.

[37] Mummenhof, *op. cit.*, p. 97.

[38] " 1562. Hierinnen verzaichnet wie viel persohn von alten und jungen es in einer wochen und jeden tage zu Nurmberg in der statt, zum Gastenhof und

Although Behaim's supplication was heard, the family ailments were to appear in other forms. Those, incurable by the Galenic applications of the good physicians Wolf and Hess or the gleanings of the able apothecaries Pfister and Zimmerman from the "Dispensatory" of Valerius Cordus, were subjected to the skill of the barber-surgeons.[39] The practitioner of "small surgery," who had already performed his masterpiece either of grinding scissors or preparing salves, specialized in the setting of fractures, bloodletting, dermatology and cupping. Behaim frequently consulted Master Nicolas for bloodletting paying him usually one and a half pounds.[40] During the pregnancy of Magdalena Behaim in 1567 he visited her bedside, applied a plaster and charged two florins for the treatment.[41] On January 23, 1568, Behaim records: "Master Nicolas the barber surgeon came to my wife for several days when her checks were so badly swollen. I honored him with two pounds, twelve pfennig."[42] The entry closes on a rather apologetic note: "He did not want to take any more."[43] Upon another occasion Master Nicolas or a colleague was summoned to treat Magdalena's sore throat. In this instance there was little hesitation about the acceptance of the fee which was exactly twice as high.[44] Master Michael treated Behaim for seven weeks during December-January 1567 for an injury sustained

Weerd auch im lazaret gestorben hat. Adi 24 augusto 1562 angefangen. Gott der almechtig sol sein zorn von uns abwenden, amen." Kamann, "Paulus Behaims I. Haushaltungsbüchern," p. 106, note 1.

[39] Valerius Cordus was the author of the *Pharmacorum conficiendorum ratio vulgo vocant dispensatorium*. Nuremberg: Petreius, n.d. En route to Italy, Cordus had left the manuscript of his work with members of the magistracy who gave it to certain Nuremberg physicians for their opinion. Having received their endorsement, the Nuremberg council decreed that the *Dispensatorium* was to be purchased by every resident physician and druggist. Hermann Peters, *Zur Geschichte des Apothekenwesens in Nürnberg*. p. 18.

[40] "Adi 13 sebtember [1556] zalt dem palbierer Maister Niklas, so er zu adergelassen 1 lb. 12 pf. Kamann, *op. cit.*, p. 120.

[41] "Adi 28 december [1566] zalt dem maister Nicklas balbierer dass er vil wochen zu meim weib gangen als sy schwanger wart, und sy an painen gepflastert, 2 fl." Kamann, "Paulus Behaims I. Haushaltungbüchern," p. 120.

[42] "Adi 23 jener [1567] maister Nicklas balbierer verert so etlich tag zu mein weib gangen, als sy ein heftig geschwoln packen gehabt." *Ibid.*, p. 121.

[43] . . . "nit mer nemen wolen, 2 lbs. 12 pf." *Ibid.*

[44] "Adi 7 Juni [1559] dem balbierer zu haylen als sy ein poesen hals hat, zalt ime 4 lbs. 24 pf." *Ibid.*, p. 118.

from knocking his left shinbone against the side of his house. His bill amounted to four florins.[45]

Doctors' fees and apothecaries' bills in no way appear to have deterred Behaim's desire for physicial relief. Not only his wealth but the relatively moderate charges of the medical circle enabled him to resort to prescribed remedies and cures. Treatment for an extended period from eight to twelve days averaged about four florins or approximately twenty-four shillings a visit. Wolf and Hess attended little Paul for a week together receiving eight florins.[46] Von Amberg took care of Behaim's eye infection for eight days and charged over four florins.[47] Wolf was paid two florins for a single thorough examination comprising a purge, bloodletting and a urine analysis.[48] Prünsterer's remuneration was higher.[49] His reputation as " one of the most learned of German spirits " may have entitled him to demand more.[50]

The fees of Behaim's physicians were not so high as those of their predecessors. During the first decade of the century Anton Tucher, one of the Nuremberg burgomasters, had frequent recourse to medical advice. In 1510, his physician, Dr. Johann Lochner, charged the patrician for three days treatment one gulden.[51] Fees of this early period resembled more closely those officially established after Behaim's death. The magistracy decreed in 1592 that physicians might demand for their first visit in case of ordinary illness one gulden or four florins. For each following visit they were to receive one florin. In case of contagious diseases especially during epidemics doctors were to be paid one and a half guldens for their first visit and a half gulden for each following.[52]

A comparison of the price of drugs between the first quarter

[45] " Adi 10 Januari [1566] dem maister Michel balbierer zalt dass er bey 7 wochen zu mir gangen und mich am linken schinpain gehailt hat, dass ich mich in dem Behaim stifthaus daran gestossen hab, 4 fl., *ibid.*, p. 113.

[46] See footnotes 12 and 16.

[47] See footnote 22.

[48] See footnote 11.

[49] See footnote 20.

[50] ". . . vix iam doctius ingenuum Teutonis. . . ." Will, *op. cit.*, III, 250.

[51] " Item adi 16 maczo [1510] dem doctor Lochner arczt, ist 3 tag czu mir gangen, dt ime 1 gulden." " Anton Tuchers Haushaltbuch (1507-17)" edited by Wilhelm Loose in *Bibliothek des Literarischen Vereins in Stuttgart* (Tübingen, 1877), CXXXIV, 78.

[52] Peters, *Der Arzt und die Heilkunst in der deutschen Vergangenheit*, p. 73.

and the middle half of the sixteenth century is limited. Both Tucher and Behaim refer to the cost of electuaries but since the ingredients of both medications are not specifically mentioned, there is little basis for comparison. The pellets purchased by Tucher, however, cost less than half those bought by Behaim.[53] The lot of the apothecary after Behaim's death, as previously mentioned, was to grow steadily worse. The Memorial of 1581 complained of the keen competition of other tradesmen and the failure of physicians to prescribe beneficial drugs. "How many expensive medicines are kept from year to year and deteriorate because the doctors do not prescribe them and they prove a total loss to the druggist. Of such medicines we will enumerate but the fruit juices, the purging elixir of roses, furthermore dissoluble electuaries and pills."[54] Zimmerman complained that all the physicians' prescriptions filled by him in 1578 did not amount to over four guldens. He requested the consideration of the magistracy as to how this income would sustain his wife and children.[55]

The fees of the barber surgeons did not fluctuate considerably between 1501 and 1570. Master Nicolas treated Magdalena Behaim for a sore throat and charged two and a half florins.[56] The barber surgeon Master Hans attended Tucher for scabies in 1523 and received two florins.[57] The injury to Behaim's shinbone was not totally unlike an accident suffered by his grandfather Friedrich in 1494.[58] The elder Behaim had paid the barber surgeon Master Linhart only one florin while his grandson's treatment amounted to four florins. Paul's surgeon, however, attended him for several

[53] "Item adi 24 [Sept. 1516] dem Veit appotecker für ein firtel hollderpeerlatwergen . . . bezalt ime par 2 lbs. 10 pf." Tucher, *op. cit.*, p. 133.

[54] Peters, *Pictorial History of Ancient Pharmacy*, pp. 48-49.

[55] Peters, *Der Arzt und die Heilkunde in der deutschen Vergangenheit*, p. 77.

[56] See footnote 44.

[57] "25 Feb [1523] dem maister Hans balbierer am Hewmarckt. . . . pei 14 tagen czu mir gangen ist die krecz von mein handen czu vertreiben dt ime 2 fl." Tucher, *op. cit.*, p. 92.

[58] "Item 1494 am suntag nach sant Ambrosias tag zalt Maister Linhart palbirer hinter dem rathhaus ein fl. rein von meins painsswegen." J. Kamann "Aus Nürnberger Haushaltungs- und Rechnungsbüchern des 15. und 16. Jahrhunderts." (Aus Michel Behaims Rechnungen über das Hauswesen, 1487-1511) in *Mitteilungen des Vereins für Geschichte der Stadt Nürnberg* (Nürnberg, 1886), Vol. VI, 74.

weeks.[59] For two shampoos and mouthwash the younger Behaim gave Master Michael two florins.[60] Tucher in 1512 paid the barber surgeon Hans one gulden for a dentifrice.[61]

In contrast to Behaim's daily expenses his physicians' bills were extremely moderate. Whereas seven chickens cost the patrician almost three pounds,[62] Wolf's daily visit did not quite amount to one. Five codfish totalled little less than this same doctor's fee for five calls.[63] Behaim paid Prünsterer two florins for a general examination and expended the same amount for a twenty-two inch piece of velvet.[64] Medicines were relatively more expensive than physicians' fees. Behaim purchased two pairs of low shoes for two pounds but paid Trittler more than five and a half pounds for a remedy against the stone.[65] A two day dosage of rosewater cost more than a history book.[66] In contrast the barber surgeon was poorly paid. A bloodletting cost no more than the price of four lebkuchen.[67] Two pounds of sugar amounted to little less than the bill presented by Master Nicolas for several days' treatment.[68]

When death, however, transcended the efforts of Wolf and Hess, the medications of Pfister and Trittler, the applications of Masters Nicholas and Michael, Behaim left to his descendents as a singularly unique legacy his household book rich in the materia medica of daily life.

[59] See footnote 45.

[60] "Adi 28 may [1565] dem maister Michel balbierer hat er mein Paulus den kopf 2 mal getzwagen auch für gurgelwasser verert 2 fl." Kamann, "Paulus Behaims I. Haushaltungsbüchern," p. 127.

[61] "Item adi 14 dezembris [1512] dt maister Hanssen barbierer am Hewmarckt für eczlich wasser czu mein czeenen . . . facit 1 gulden." Tucher, *op. cit.*, p. 95.

[62] "7 junge huenlein 2 lbs. 16 pf. [1559]." Kamann, *Ibid.*, p. 94.

[63] "5 stück stockfisch 1 fl. 1 lbs. 6 pf. [1562]." *Ibid.*, p. 89.

[64] "½ eln samet 2 fl. [1562]." *Ibid.*, p. 118.

[65] "2 nider par schuh 60 pf. [1567]." *Ibid.*, p. 115.

[66] "Adi 8 may [1556] hab ich zu Franckfurt die nechst fastenmes kauft 1 buch cronica Johanes Schleydanes alle geschicht bey diesem Keyser Karl beschehen cost 1½ fl." *Ibid.*, p. 78.

[67] "4 leckuchlen 1 lbs. 12 pf. [1560]." Kamann, "Paulus Behaims I Haushaltungbüchern," p. 115.

[68] "5 pf. meleszucker 5 lbs. [1569]." *Ibid.*, p. 86.

MEDICO-HISTORICAL NEWS AND ACTIVITIES

ANNOUNCEMENTS

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE

The *Eighteenth Annual Meeting* will be held in Atlantic City on May 3-5 1942.

Members intending to present a paper are requested to announce it to Dr. J. H. Elliott, 11 Spadina Road, Toronto, Ontario, Canada.

CONSTITUENT SOCIETIES

The *New York Society for Medical History* is holding its meetings at the New York Academy this year. The first meeting was held on October 9, 1941. Dr. Iago Galdston presented a paper on "The Epidemic Constitution in Historical Review." The officers of the Society are: Edward H. Hume, M. D., Chairman; George Rosen, M. D., Vice-chairman; Edward F. Hartung, M. D., Secretary.

NATIONAL NEWS

American Institute of the History of Pharmacy

First Seminar For Teachers of the History of Pharmacy Held At Madison, Wisconsin, On July 28th and 29th, 1941.

This Seminar, the first of its kind not only on American soil but in the whole world, was of necessity of an introductory character. It was devoted to the

General Ideas, Aims and Methods of the Teaching of the History of Pharmacy

Those present were: 1) Dr. Ralph E. Bienfang, Professor of Pharmacognosy, University of Oklahoma; 2) Dr. Roy A. Bowers, Assistant Professor of Pharmacy, University of Kansas; 3) Dr. L. W. Busse, Instructor in Pharmacy, University of Wisconsin; 4) Donald Cook, Graduate Student, University of Wisconsin; 5) Dr. A. A. Dodge, Instructor in Pharmacy, Philadelphia College of Pharmacy and Science; 6) H. C. Forslund, Instructor in Pharmacy, University of Idaho, South Branch; 7) Dr. E. L. Hammond, Dean of the School of Pharmacy, University of Mississippi; 8) Benjamin Hecht, Instructor in Chemistry, Middlesex University, Waltham, Mass.; 9) Dr. E. J. Ireland, Professor of Pharmacology and Pharmacognosy, Loyola University, New Orleans, La.; 10) Dr. C. O.

Lee, Professor of Pharmacy, Purdue University, Indiana; 11) Dr. Minnie M. Meyer, Professor of Pharmaceutical Chemistry, Southern College of Pharmacy, Atlanta, Ga.; 12) J. E. Orr, Graduate Student, University of Wisconsin; 13) Dr. Lloyd M. Parks, Assistant Professor of Pharmaceutical Chemistry, University of Wisconsin; 14) Dr. Kenneth E. Redman, Assistant Professor of Pharmacy, University of Toledo, Ohio; 15) Dr. Ed. S. Rogofsky, Assistant Professor of Pharmacy, Indianapolis College of Pharmacy; 16) Dr. T. W. Rowe, Associate Professor of Pharmacy, Medical College of Virginia; 17) Dr. Arthur H. Uhl, Director of the Course in Pharmacy, University of Wisconsin; 18) Dr. George Urdang, Director of the American Institute of the History of Pharmacy.

In his short welcoming address, the President of the A. I. H. P., Dr. Arthur H. Uhl, paid tribute to the memory of the late Dr. Kremers. He stressed the fact that the deceased has left his pharmaceutico-historical work to American pharmacy as a bequest as well as a responsibility.

On the first day of the Seminar, the following lectures were read and discussed: 1) The Scope of the History of Pharmacy (G. Urdang); 2) The Concept of the History of Pharmacy (G. Urdang); 3) Experience in Teaching History of Pharmacy (E. J. Ireland); 4) Managing a Course in the History of Pharmacy (C. O. Lee).

A common dinner united the participants at the evening.

On the second day the following lectures were read and discussed: 1) Biographies as Subject and Material of the History of Pharmacy (G. Urdang); 2) Survey of Pharmaceutico-Historical Literature (E. J. Ireland); 3) Survey of Pharmaceutical Journals (C. O. Lee); 4) The Development of the Pharmaceutico-Historical Movement (G. Urdang).

It convincingly proved the vivid interests of the participants that the discussion on each lecture took at least as much time as the reading of the lecture.

It is intended to make an annual Seminar for Teachers of the History of Pharmacy a permanent feature of the A. I. H. P. In the years to come, special periods or parts of the history of pharmacy and their teaching shall be made subjects of the Seminar whereby the individual topics shall be assigned as far as possible to persons who have specialized in the fields concerned.

In his closing address Dr. Uhl assigned the task of determining the place and the general topic of the next Seminar to a Committee consisting of Drs. R. E. Bienfang, E. J. Ireland, C. O. Lee (Chairman), Minnie M. Meyer and G. Urdang.

History of Dermatology

Doctor Paul E. Bechet presented an exhibit of memorabilia of the early American dermatologists at the scientific exhibit of the Section of Derma-

Fig. 1.

Exhibit of memorabilia of early American dermatologists in the Scientific Exhibit of the Section on Dermatology and Syphilology at the annual meeting of the American Medical Association at Cleveland, June 2-6, 1941.

tology and Syphilology of the American Medical Association, June 2-6 at Cleveland.

The exhibit consisted of autographed letters, signed manuscripts, original monographs, portraits, photographs, first editions and the like.

Among the outstanding items exhibited may be mentioned Thomas C. Gilchrist's original drawings of the blastomycetes and the microphotographs of his first case of blastomycosis, together with the original report of this case at a meeting of the American Dermatological Association in Washington in June, 1894. The autographed manuscript address of James C. White as first president of the American Dermatological Association, at its first meeting in Niagara Falls on September 4, 1877. The original agreement between E. B. Treat and Company and Doctor George Henry Fox for the publication of his "Photographic Illustrations of Skin Diseases" the first time photographs were used to depict diseases of the skin. The autographed draft of the first case of acanthosis nigricans by Dr. Sigmund Pollitzer who was the first to describe the disease. Autographed letters by Henry D. Bulkley who became the Founder of American dermatology when he opened the Broome Street Infirmary for Diseases of the Skin on June 22, 1836, and originated in the next three years, the first lectures on dermatology in America at the Broome Street School of Medicine and later, at the College of Physicians and Surgeons then located in Crosby Street. The clinical history of the first case to be treated at the New York Skin and Cancer Hospital in the handwriting of the Founder of the Hospital Doctor L. Duncan Bulkley and dated January 15, 1883. A letter to Doctor Arthur Van Harlingen a pioneer Philadelphian dermatologist signed by many of the most celebrated physicans in Philadelphia in the last half of the nineteenth century. Among the signers may be found such well known names as Sir William Osler, Samuel W. Gross, Louis A. Duhring, Henry W. Stelwagon, S. Solis-Cohen, S. Weir Mitchell. Doctor William Allen Pusey's tools used in the making of carbon dioxide snow for the first time. His first pioneer work in roentgentherapy in skin diseases was also represented by his first monographs on the subject. The Scroll of Resolutions presented him by the Chicago Dermatological Society at a dinner in his honor was also shown.

Among the first editions, was Noah Worcester's extremely rare "A Synopsis of the Symptons, Diagnosis, and Treatment of the More Common and Important Diseases of the Skin," 1845. The first American text book on skin diseases. Also exhibited was Henry G. Piffard's "Elementary Treatise on Diseases of the Skin," 1876, the second to appear, and Louis A. Duhring's "Practical Treatise on Skin Diseases," 1877, the third. Volume one, Number one of the American Journal of Syphilography and Dermatology, a presentation copy to Samuel W. Gross by the editor M. H. Henry, was also exhibited. Stelwagon's, Hyde's and Pusey's first editions of their text books were also presented, all containing their autographs. A number of proof

Fig. 2.

Reading Room of the Historical Library,
Yale University School of Medicine.

sheets of the preface to Duhring's text book on skin diseases and those on his first monographs on dermatitis herpetiformis were also shown. About forty original monographs many of them rare were also of the collection.

The photographs consisted of individuals and groups of the early members of the American Dermatological Association.

Autobiographies of James C. White, Samuel Sherwell, George Henry Fox, and William T. Corlett, all with full page inscriptions, were also shown. A life-sized bust of Noah Worcester who taught dermatology at Western Reserve as early as 1842 was also a part of the exhibit.

Doctor Bechet wrote a forty page essay entitled "A Brief Review of the Early History of American Dermatology" especially for the occasion. This comprised a complete review of the beginnings and rapid progress of the specialty in America in the nineteenth century, together with "thumb-nail" sketches of its pioneers.

Doctor Bechet was awarded a special certificate of merit by the American Medical Association.

Historical Library of Yale University School of Medicine

Medico-historical studies have been given a new center by the foundation of the Historical Library of Yale University School of Medicine that was dedicated on June 15, 1941.

The Library is the historical division of Yale Medical Library and is beautifully housed in a most convenient new building. Its nucleus consists of the *Cushing Collection*—some 15,000 volumes—which is particularly rich in Renaissance medicine, history of anatomy and surgery; the *Fulton Collection* composed of books in the field of the history of physiology and experimental medicine; and the *Klebs Collection* that will be added later. Valuable gifts have also been contributed by Dr. Edward C. Streeter, Dr. Clements C. Fry and Dr. George M. Smith.

In addition to books the Library also possesses important Museum Collections, notably collections of early pharmacy jars and other implements used in the dispensing of drugs and a unique collection of weights and measures, both the gift of Dr. Streeter.

The Beaumont Medical Club brought to the Library its collection of books and manuscripts, instruments, and other memorabilia concerning William Beaumont.

It is to be hoped that Yale University will be able to develop the Library into a department of medical history. A beginning has been made by the appointment of Prof. Arturo Castiglioni as Research Associate and the Library already has plans for two series of publications, *Papers on Bibliography and the History of Medicine* and a *Monograph Series*.

The Beaumont Medical Club

The sixty-third regular meeting of *The Beaumont Medical Club* was held in The Beaumont Room, Yale Medical Library at 5.00 P. M., Friday, October 10, 1941. The program was as follows:

1. "The Founding of the Connecticut Medical Society" Dr. Creighton Barker
2. "An Old Pharmacy for a New Library" Dr. Edward C. Streeter

After the meeting the members adjourned for dinner at The Graduate Club.

Millsaps College, Jackson, Miss.

From a letter of Dean Wm. E. Riecken, dated June 10, 1941: "We have at Millsaps College a very progressive Pre-Medical club which is quite active throughout the school year. From among its number are chosen those who are eligible for our honorary fraternity, Alpha Epsilon Delta. This fraternity acts as sponsor for the club, and through the awarding of prizes by Dr. Rehfieldt and his son of Jackson, and Dr. B. B. Weinstein of Tulane University, we annually award prizes for the best essays on some phase of the history of medicine. This has stimulated a great deal of interest and appreciation in this line of work.

"In addition to this, we have during the winter an outside speaker once or twice to speak to the group on some phase of the history of medicine."

Copernicus

The year 1943 will mark not only the 400th anniversary of the publication of Vesalius' *Fabrica* but also that of Copernicus' *De Revolutionibus*. A Copernicus Society has been formed with the object of publishing an English translation of *De Revolutionibus*. The headquarters of the Society is 459 East 133rd Street, New York City. The translator is Dr. Edward Rosen who has already published English translations of the minor astronomical works of Copernicus.

NEWS FROM EUROPE

Denmark

Dr. E. E. Maar died at the age of sixty-eight years. He was for many years professor of the history of medicine in the University of Copenhagen.

England

From the *London Times* of May 21, 1941:

"Irreparable losses, including most of the Hunterian Collection, were suffered by the Royal College of Surgeons in Lincoln's Inn Fields, whence the society moved from their eighteenth-century hall in the Old Bailey.

Incendiary bombs first fell on the roof of the building, but just as a watcher was giving the alarm a high-explosive missile struck No. 5 room of the museum. Only two persons on the premises were slightly injured. In spite of great damage to the interior the fabric of the college is more or less intact, but the museum buildings have suffered severely, and fire also gutted an adjoining building containing solicitors' offices and the College of Estate Management.

"The most valuable specimens in Dr. John Hunter's collection, purchased by the Government for £15,000 two years after his death in 1793 and presented to the college, are probably safe under the débris, having previously been moved into reinforced sections of the sub-basement. The collection of portraits and pictures, including Reynolds's portrait of Hunter, are safe in the country, and the parts of the records still at the college had been stored in strong rooms that withstood the blast and flames.

"But thousands of museum pieces are gone, among them the skeletons of kangaroos brought by Captain Cook from Australia, and the comparative osteology collection of 4,000 specimens acknowledged to be the finest in the world. Much of the material antedated British Museum specimens, and, as Professor Cave, the assistant conservator, said yesterday, the greater part of the wonderful work of Sir Richard Owen and Dr. William Flower has been undone.

"All Dr. Hunter's eighteenth century furniture, which was in the president's room, was destroyed. The original surgical instruments used by Lister were recovered, but many others were lost. Though the oldest mummy in the world, that of Ra Nefer, an Egyptian nobleman who died, it is said, about 2900 B. C., was destroyed, many mummies of popular interest have been salved.

"By a grim coincidence the invaluable Army Medical War Collection, containing plaster casts of every type of wound, was also destroyed, as were the council room and lecture theater."

Holland

Dr. M. A. van Andel of Gorinchem died on June 5, 1941. He was one of the most active members of the *Nederlandsche Genootschap voor Geschiedenis der Genees-, Natuur- en Wiskunde* and the author of many valuable monographs and papers on various topics of medical history. Medical folklore was one of his chief subjects of interest.

Switzerland

The *Schweizerische Gesellschaft für Geschichte der Medizin und der Naturwissenschaften* held its Annual Meeting on September 7, 1941 in Basle. Three papers were presented in commemoration of the 400th anniversay of the death of Paracelsus:

1. Paracelsus als Arzt: Dr. C. G. Jung (Küsnacht-Zürich).
2. Über die Auffassung des Paracelsus von Krankheit und Heilwirkung: Dr. Hans Fischer (Zürich).
3. Arzneistoffe aus Paracelsischer Zeit: Dr. A. Lutz (Basle).

Other papers were:

4. Über die Narkose in Mittelalter: Dr. E. Wölfflin (Basle).
5. Der Beginn der Experimentalphysik in der Schweiz: Dr. Ed. Fueter (Wädenswil).
6. Medizinisches aus den St. Galler Klosterannalen: Dr. P. Jung (St. Gall).
7. Die bildlichen Darstellungen der anatomischen Sektion vom 14.-19. Jahrhundert: Dr. G. Wolf-Heidegger (Basle).

A Paracelsus Exhibit was displayed in the University Library, and the Society also visited the famous Collection on the History of Pharmacy of the University which was assembled and is directed by Prof. J. A. Häfliger.

The Society just issued volume XII of its series of publications: *Geschichte der exakten Wissenschaften in der schweizerischen Aufklärung (1680-1780)*, a remarkable volume of 336 pages by Eduard Fueter, one of the most promising historians of science of the younger generation.

NEWS FROM ASIA

China

From a letter of Dr. K. C. Wong, President of the *Chinese Medical History Society*, dated September 10, 1941:

"You will be glad to hear that I have recently succeeded in acquiring a large collection of old Chinese medical books for our Library. It belonged to an abbot of a monastery in Hangchow. It contains over 3,000 volumes and many of them are Ming prints. Fortunately these books have escaped the general looting after the city was occupied."

BOOK CATALOGUES

Davis & Orioli, 1 St. Martin's St., Wallingford, Berks., England: Catalogue 100, Old English Medical Books from the Library of Dr. H. J. Norman.

Henry George Fiedler, 31-33 East 10th St., New York: Catalogue 83, Important Collection of Valuable Books on the Microscope.

E. P. Goldschmidt & Co., Ltd., 45 Old Bond Street, London, W. 1, England: Catalogue 64, A Collection of Books on the History of Bacteriology and other New Acquisitions in the History of Science including some fine Early English Medical Books from the Libraries of Dr. William Bulloch, Sir D'Arcy Power, a. o.

The Hoosier Bookshop, 2135 North Alabama, Indianapolis, Indiana: List No. 86, A Further Selection of Americana, Medicine, Miscellaneous. List No. 91, Americana, Medicine, Miscellaneous, and a Selection of Books on Art.

Old Hickory Bookshop, 65 Fifth Avenue, New York: Catalogue No. 67, The Literature of Medicine and Science illustrating the Romance of Pain.

Schuman's, 20 East 70th St., New York: Medical Miscellany, List C.